SOAP

SANITARY CHEMICALS

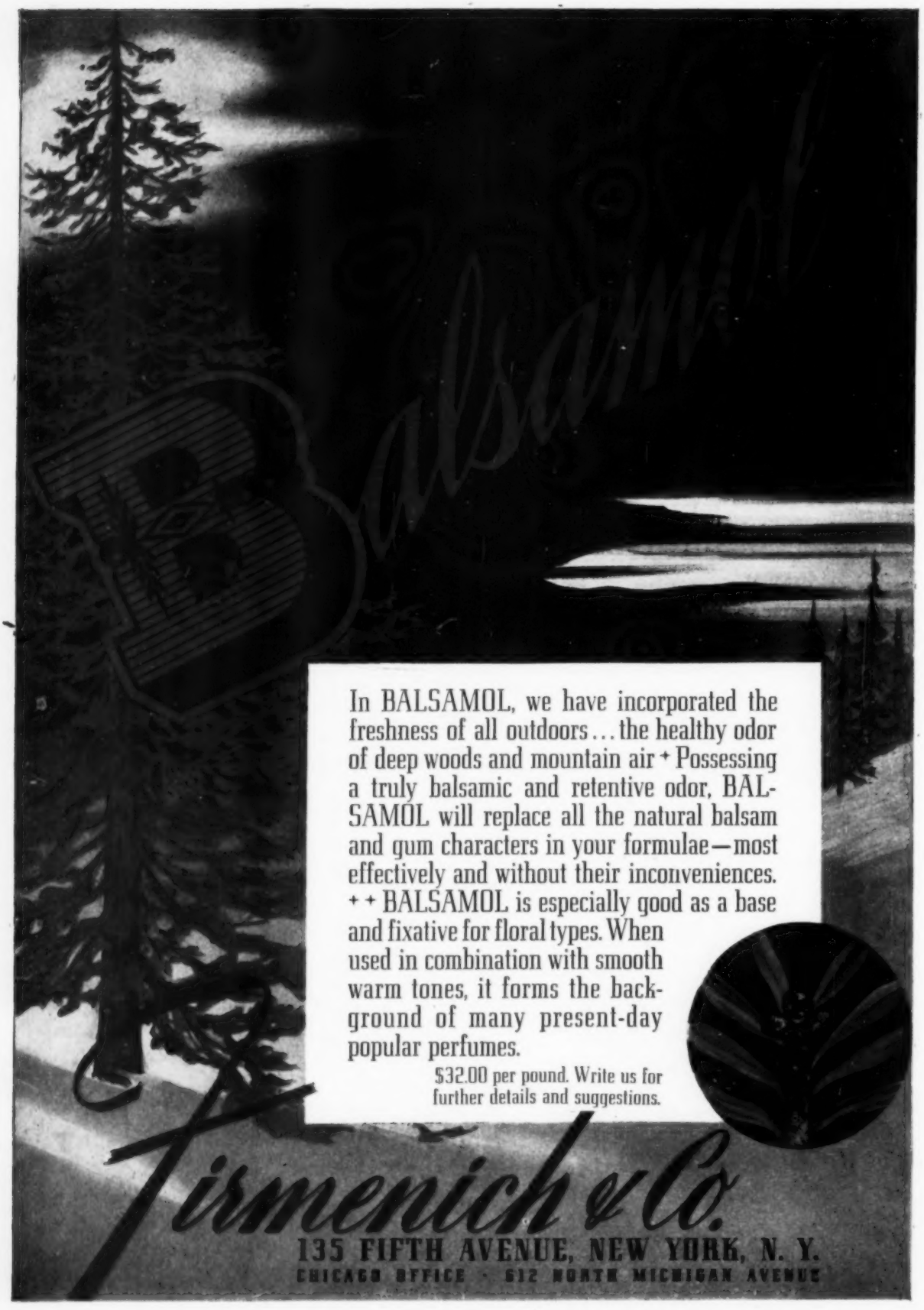
A SOURCE...

Year in and year out for over a half century, UNGERER has been a dependable source of fine perfuming materials for many leading manufacturers. Whether essential oils, aromatic chemicals or perfume specialties, time has proved that it pays to . . . consult UNGERER!

UNGERER & COMPANY

161 Sixth Ave. New York

"Our quality is always higher than our price."


Balsamol
In BALSAMOL, we have incorporated the freshness of all outdoors... the healthy odor of deep woods and mountain air + Possessing a truly balsamic and retentive odor, BALSAMOL will replace all the natural balsam and gum characters in your formulae—most effectively and without their inconveniences. + + BALSAMOL is especially good as a base and fixative for floral types. When used in combination with smooth warm tones, it forms the background of many present-day popular perfumes.
$32.00 per pound. Write us for further details and suggestions.
Firmenich & Co.
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CHICAGO OFFICE · 612 NORTH MICHIGAN AVENUE

Clean-Up Profits with

'S-GONE

HAND-CLEANER

(LANOLIN-TYPE)

Stepped-up production means more dirty hands . . . an ever-growing market for good, dependable hand cleaners. FULD Hand Cleaners are leaders in the field . . . tried and proven by years of use in the field. Fuld's 'S-GONE Hand Cleaner (lanolin-type) is the hand cleaner for regular wash room use. Removes hand dirt quickly and easily, leaves the hands soft and smooth because it contains skin softening agents similar to lanolin. The pure vegetable abrasive gives quick action without irritation. Works in any dispenser. Two types: 'S-GONE "A" for regular use; 'S-GONE "B" for heavy-duty use in shops and factories. Packed in 150-pound drums, 5-pound and 1-pound containers.

FULD BORATED HAND POWDER

A superior product that meets U. S. Government specifications PS628. Free-flowing, non-caking, it can be used in any dispenser. Contains 72%-77% borax, mildly perfumed. Packed in bulk drums, 5-pound and 1-pound containers.

FULD HAND SCOURING POWDER

A safe hand cleaner that employs powdered silica as its abrasive base. Meets U. S. Government specifications EPD 221. Recommended for use in plants and shops for removal of occupational soil. Packed in bulk drums, 5-pound and 1-pound containers.

Fuld Brothers

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2444 East 8th Street, Los Angeles 21, California
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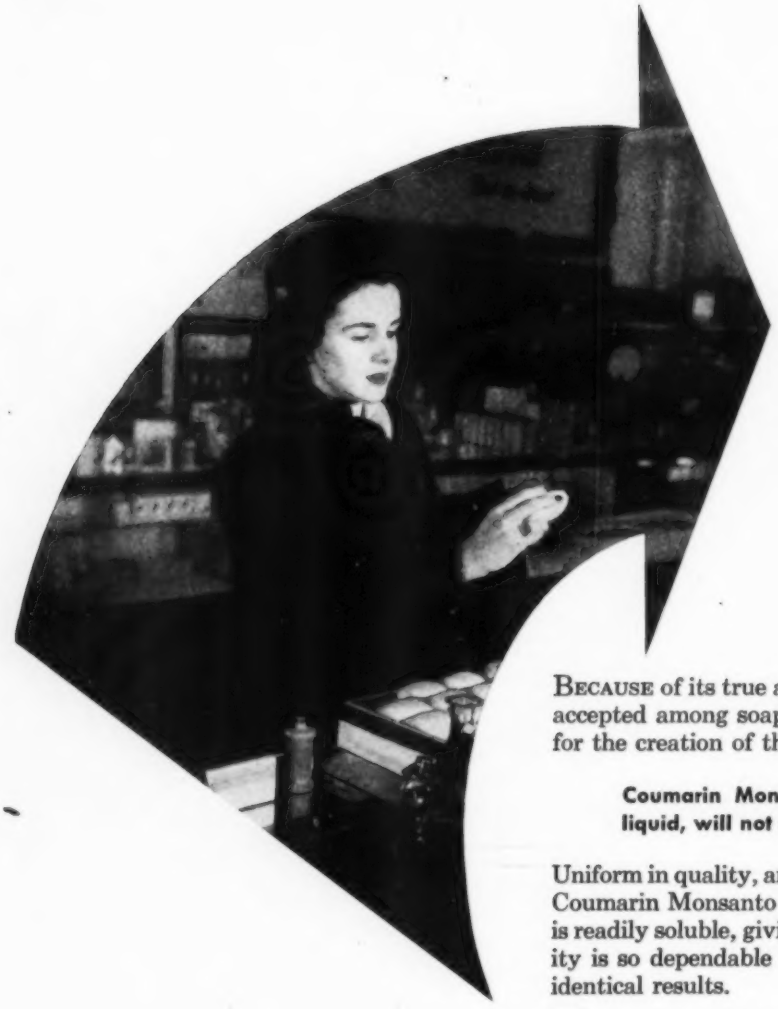

COUMARIN MONSANTO

favored for popular bouquets

BECAUSE of its true aroma, Coumarin Monsanto is widely accepted among soapmakers and perfume manufacturers for the creation of their most popular bouquets.

Coumarin Monsanto, which melts to a clear liquid, will not discolor even the whitest soaps.

Uniform in quality, and one of the purest chemicals known, Coumarin Monsanto is efficient and economical to use. It is readily soluble, giving quick, uniform blending. Its quality is so dependable that equal amounts always produce identical results.

Monsanto was the first American manufacturer to produce Coumarin. The product, developed through years of painstaking research, is manufactured under strict laboratory control. These precise methods actually start with the materials from which Coumarin is made, for most of these ingredients also are Monsanto products.

We shall be pleased to send you complete information, prices and samples of Coumarin Monsanto. The coupon is for your convenience. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

MONSANTO FLAVORING MATERIALS

Coumarin Monsanto

Ethavan (Ethyl Vanillin)

Methyl Salicylate Monsanto

Vanillin Monsanto

MONSANTO CHEMICALS

SERVING INDUSTRY...WHICH SERVES MANKIND

MONSANTO CHEMICAL COMPANY
Dept. F-1, 1700 S. Second St., St. Louis 4, Missouri

We are interested in Coumarin Monsanto for use in .....

Please send materials indicated: .....Data; .....Prices; ..... Sample.

Name .....

Company .....

Street .....

City .....*Zone*.....*State*.....

Volume XXI Number 1

SOAP and SANITARY CHEMICALS

Reg. U. S. Pat. Office

JAN. 1945

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254 WEST 31st STREET, NEW YORK 1, N. Y.

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The Girl behind the Counter

ASK THAT GIRL. SHE'LL TELL YOU THE FIRST THING A WOMAN DOES BEFORE SHE BUYS A CAKE OF SOAP. YOU'VE GUESSED IT—SHE **SMELLS IT.** NO PERSUASIVE SALES TALK WILL MAKE HER BUY IT IF SHE DOESN'T LIKE THE SMELL OF IT. WE HAVE PERFUMERS WHO ORIGINATE SOAP PERFUMES THAT PLEASE WOMEN — HUNDREDS OF ORIGINALS ARE HERE FOR YOUR SELECTION.

VAN AMERINGEN-HAEBLER, INC.

315 FOURTH AVENUE NEW YORK 10, N. Y.

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IS THE POWDERED HAND SOAP

SALES LEADER

because it has the Winning Features everybody likes...

* Workers like the easy way it lifts out deep pore dirt.

* Women adore the lotion-like caress of its rich lanolin content.

* Company doctors endorse its healing effect on nicks and bruises.

* Management raves about its lightning cleansing action . . . which empties washrooms faster.

HYOLAN • with LANOLIN • THE HAND SOAP OF MODERN TIMES...

A Hysan Quality product for the Quality Jobber

SANITARY CHEMICALS Hysan

SELLING EXCLUSIVELY TO JOBBERS AND DISTRIBUTORS

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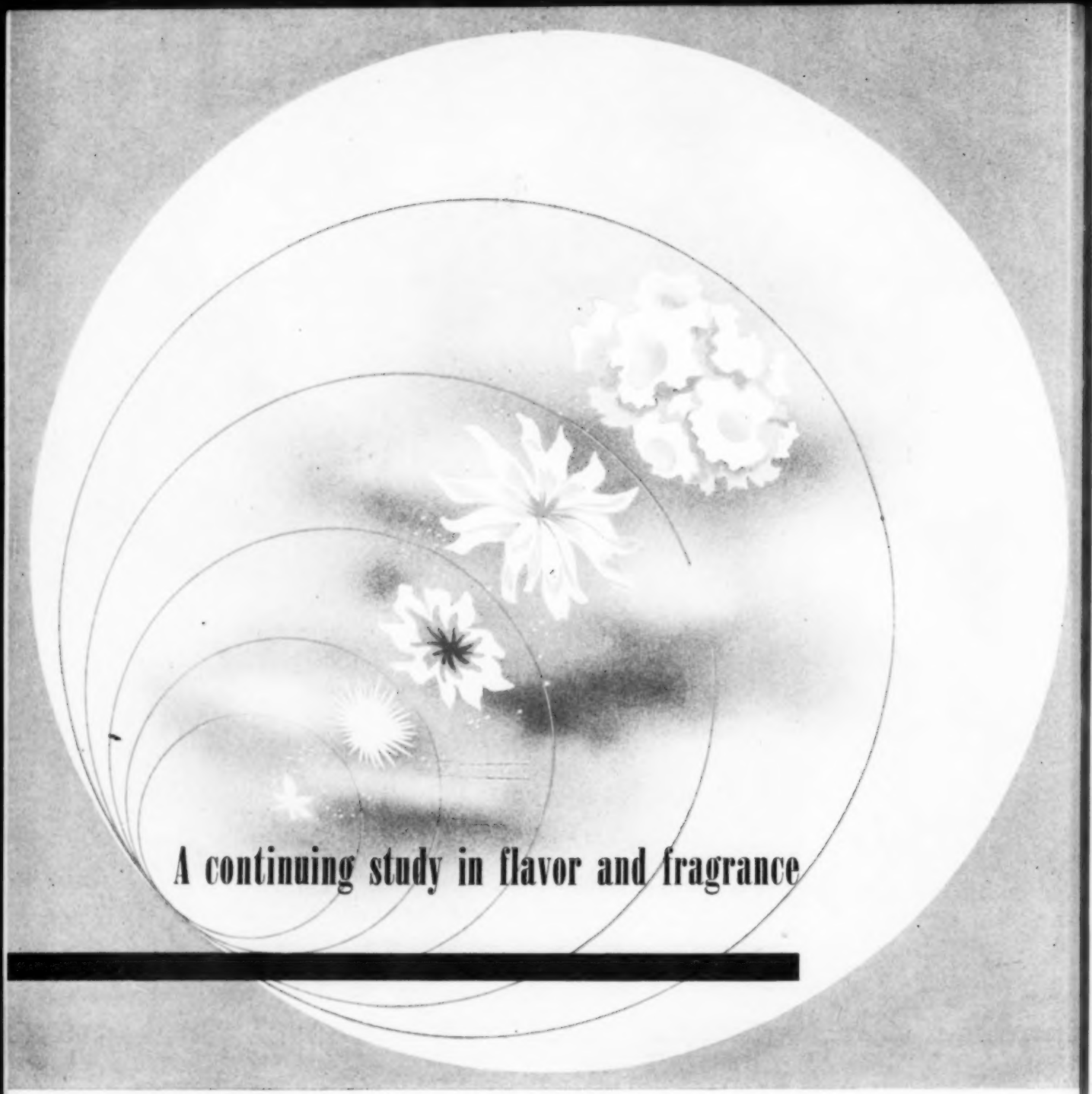
Chicago 16, Illinois



A continuing study in flavor and fragrance

The creation of new scents and flavors is a living, growing art—a constant challenge to the skill and imagination of the blender. To give him all possible assistance, it is the aim of the chemical manufacturer to develop and produce a steady flow of new and basic materials. ☆ Mindful of this obligation, Dow's research chemists continue to develop new aromatic chemicals to expand the field of creative perfumery. The quality and uniformity of Dow Synthetic Aromatics now available reflect the manufacturing skill that is the heritage of Dow's years of experience in the chemical field.

DOW AROMATIC PRODUCTS:
Coumarin, Cyclotene, Diphenyl Oxide, Diphenyl Methane, Gardanthrol, Indol, Methyl Anthranilate, Methyl Phenyl Carbinyl Acetate, Methyl Salicylate, Palatone, Phenyl Ethyl Acetate, Phenyl Ethyl Alcohol, Styrene Oxide, Styrene P-100, Sylvenol, and others.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

Synthetic **Aromatic** *Chemicals*

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

Hooker Chemicals for Soaps

Among the Hooker chemicals used in the soaps and sanitary chemicals industries are solvents, deodorizers, chlorinating agents, antiseptics, dyes and intermediates. A few of these are listed below with their principal uses suggested. More complete information will be furnished on any of interest to you. Send also for the Hooker General Products List which describes many more Hooker chemicals, some of which may be the ones you've been seeking.

PRODUCT Chemical Formula Molecular Weight	DESCRIPTION All Specific Gravities at 15.5°/15.5°C.	SUGGESTED USES
Benzoate of Soda—USP C_6H_5COONa; 144.0	White, odorless, crystalline solid. Flake or powder.	Antiseptic in pharmaceutical and medicinal preparations, in tooth paste and powders.
Cyclohexanol (Hexahydro Phenol) $C\ H_{11}OH$; 100.1	Clear, colorless liquid with pleasant aromatic odor. Sp. Gr. 0.962. Boiling Range; High Grade, 158° to 160°C, Tech. Grade, 155° to 165°C.	In manufacture of disinfectants, germicides and insecticides, perfume in soaps; solvent.
Methyl Benzoate (Niobe Oil) $C_6H_5COOCH_3$; 136.1	Clear, colorless liquid with odor resembling oil of wintergreen. Sp. Gr. 1.0930. Boiling Range 2°C Max. including 199°C.	Deodorizing material for soaps and in manufacture of perfumes.
Monochlortoluene $CH_3C_6H_4Cl$; 126.5	Clear, colorless liquid. Sp. Gr. 1.0800±.005. Boiling range 158° to 163°C.	Intermediate for organic chemicals, solvent.
Orthodichlorbenzene $C_6H_4Cl_2$; 147	Clear, colorless liquid. Sp. Gr. 1.310±.005. Boiling range 10°C Max. including 180°C.	Insecticide, solvent for natural and synthetic gums, resins, tars, grease, oil, fats. Ingredient of metal polishes, paint and varnish removers. Manufacture of pyrocatechin, dye intermediates, synthetic organics.
Sulfur Dichloride SCl_2; 103	Dark brown-reddish liquid. Sp. Gr. 1.638±.005. Decomposes above 40°C. 66% Min. Cl_2 content.	Chlorinating agent, in manufacture of organic acid anhydrides and in organic synthesis.

Whenever you have a problem in chemicals, look to Hooker for the chemicals you need and for information about these chemicals as applied to your problems.

HOOKER
ELECTROCHEMICAL COMPANY
Buffalo Avenue and Union Street
Niagara Falls, New York
NEW YORK, N. Y. • TACOMA, WASH. • WILMINGTON, CALIF.

CHLORINE — **CAUSTIC SODA**
MURIATIC ACID — **SODIUM SULFHYDRATE**
SODIUM SULFIDE — **PARADICHLORBENZENE**

HOOKER CHEMICALS

Norda

Synthetic floral oils . . .

PRESENT reduced supplies of natural floral essences emphasize the value of high quality substitutes. Synthetic floral essences can be used to replace the natural oils with full satisfaction and marked success in numerous products,—toilet soaps, shampoos, shaving creams, powders, creams, and many others.

In fact, in many products the newer synthetic floral essences are to be *preferred* for the manner in which they reproduce the true fragrance of the living flowers in the finished product,—not to mention uniformity of quality and odor fidelity, and their economy under present conditions.

Let us tell you more about these Norda substitutes as an answer to the scarcity of natural floral oils.

NORDA Essential Oil and Chemical Co., Inc.

Chicago Office
325 W. Huron St.

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2800 E. 11th Street

St. Paul Office
253 E. 4th St.

Toronto Office
119 Adelaide St., W.

New York Office
601 West 26th St.

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135 Commissioners St., W.

KRANICH SOAPS

CONCENTRATED

LIQUID SOAP
SHAMPOO

☆ ☆ ☆ ☆ ☆

POWDERED SOAPS

Pure Coconut
U.S.P. Castile

☆ ☆ ☆ ☆ ☆

POTASH SOAPS

Soft Potash 40%
U.S.P. XII Green

☆ ☆ ☆ ☆ ☆

Kranich Soap Company, Inc.

55 Richards Street **Brooklyn 31, N. Y.**

KRANICH SOAPS

30
30
30

1944-1945 ★★★

YEARS OF PROMISE...
YEARS OF DECISION...
with a token by *Givaudan*

★ We take this opportunity to express our appreciation to our customers for their cooperation in the face of shortages of materials, delays in shipments, and a general curtailment of service due to wartime conditions. Their generosity of spirit and understanding has done much to take the edge off many trying situations. We are truly grateful for this, and the spirit with which it is given. We at Givaudan look forward to repaying this debt in the years to come—in ever finer service and the development of new and improved products which will contribute to the advancement of the industries we serve.

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Givaudan-Delawanna, Inc.

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CHEMICALS
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CALCIUM CARBONATE	SODIUM ZINCATES	and Inorganic Compounds

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Wyandotte
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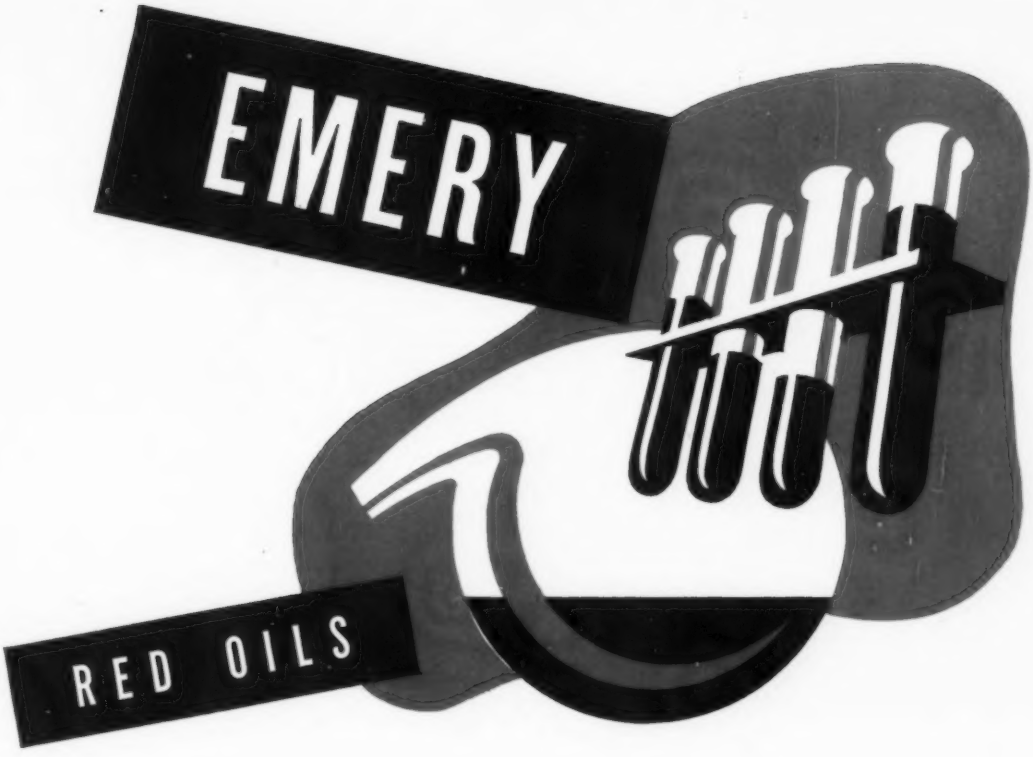
WYANDOTTE CHEMICALS CORPORATION · MICHIGAN ALKALI DIVISION · WYANDOTTE, MICHIGAN



Industrial soaps made from red oil (oleic acid) have two time-saving characteristics . . . free rinsing and cold water solubility. These factors are important in specialty soaps, shampoos and other similar liquid industrial soaps.

Specifically, then, there are many grades of Emery's Elaines (oleic acids), which are especially adapted to making industrial soaps because **1. They combine readily with water soluble alkalies and complete saponification is obtained without prolonged boiling. 2. There is no glycerine loss, nor is glycerine recovery equipment necessary. 3. The exact specifications of the various grades of Emery's oleic acids permit the close control of the physical and chemical properties of the end product.**

Emery's Elaines are also used to make emulsifying agents, oleates, in soluble cutting oils, in special lubricating greases, etc. Moreover, because of their solvent and lubricating properties, they are used in many other industries . . . in the manufacture of carbon paper . . . in the textile industry . . . etc.

Emery's research chemists, with a background of rich experience gained by Emery's 104 years of manufacturing fatty acids, have developed many products with specifications to meet today's needs. We'll be glad to recommend the most suitable grade, if you will tell us your specific requirements. We can make prompt shipment of Elaine in quantity.

EMERY INDUSTRIES • INC.

4300 Carew Tower • Cincinnati 2, Ohio

Branch Offices: New York, N. Y. . . . . Philadelphia, Pa. . . . . Lowell, Mass.

PLASTICIZERS . . . STEARIC, OLEIC, ANIMAL, VEGETABLE AND FISH OIL FATTY ACIDS . . . TWITCHELL PRODUCTS

Include the Dairy Industries in Your Selling Plans

★ Insecticides
★ Germicides
★ Cleaners
★ Detergents

The Dairy Industries are one of the nation's largest users of insecticides, germicides, cleaners, and detergents.

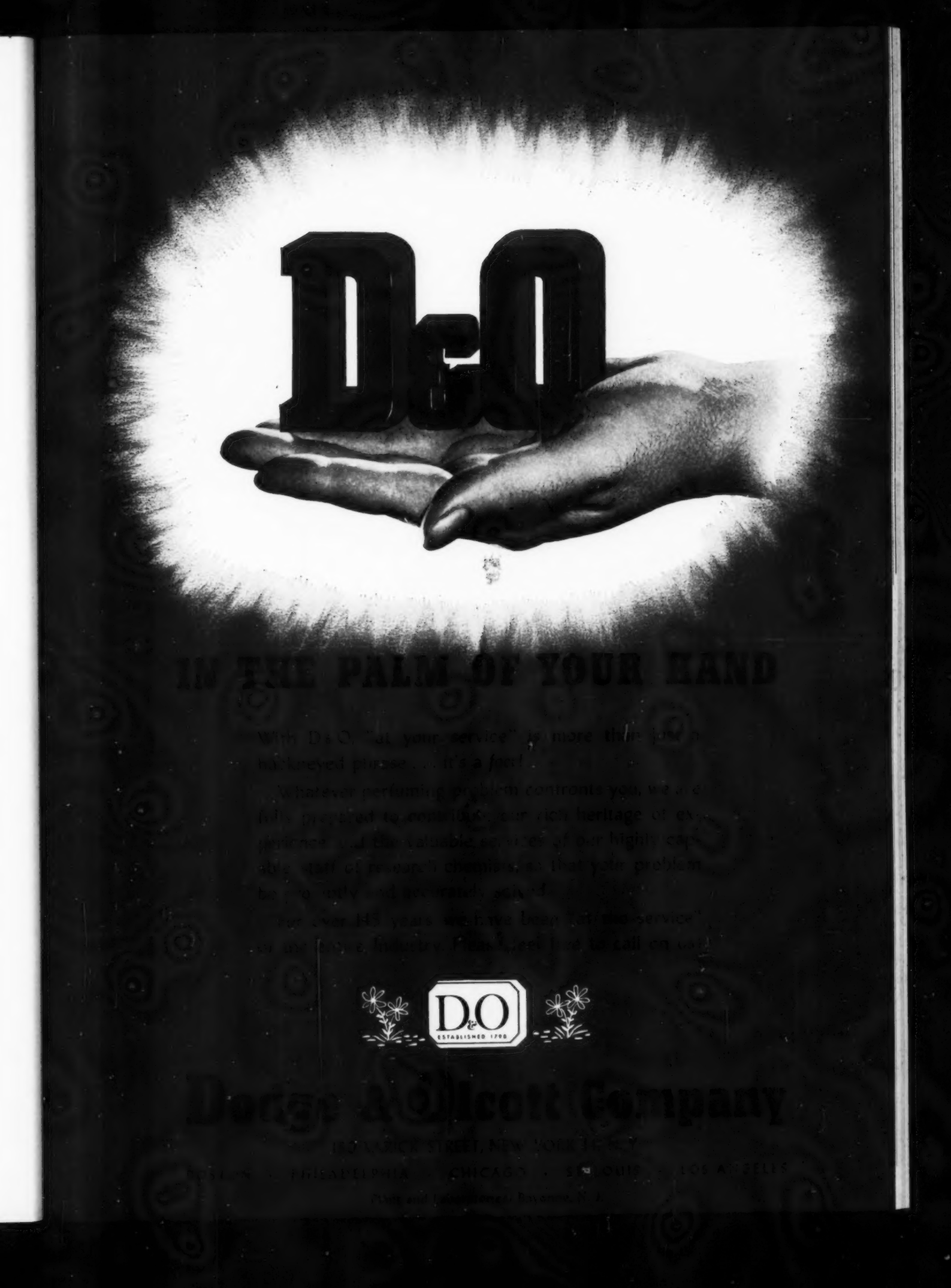
Here is a tremendous national market where clean sterile equipment is as important as fresh pure milk and where cleaning is virtually a continuous process.

You can reach and sell this market effectively and at low cost through the Dairy Industries Unit — the three leading publications in the dairy industries — The Ice Cream REVIEW, The Milk Dealer, and National Butter and Cheese Journal.

Write for details and sales data about building lasting and profitable repeat volume for your products among the thousands of ice cream plants, milk dealers, creameries, condenseries, and cheese factories of America.

THE OLSEN PUBLISHING COMPANY
505 W. Cherry St. Milwaukee 12, Wis.

The ICE CREAM REVIEW ABC | the MILK DEALER ABC | National Butter and Cheese Journal ABC



IN THE PALM OF YOUR HAND

with D & O "at your service" is more than just a
hackneyed phrase . . . it's a *fact!*

Whatever perfuming problem confronts you, we are
fully prepared to combine our rich heritage of ex-
perience and the valuable services of our highly capa-
ble staff of research chemists so that your problem
becomes only a memory.

For over 185 years we have been "at your service"
to our customers. Please feel free to call on us.

D&O
ESTABLISHED 1798

Dodge & Olcott Company

180 VARICK STREET, NEW YORK 14, N.Y.

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Perfect for Perfuming

LAUNDRY SOAPS · WASHING POWDERS · LIQUID CLEANSERS · POLISHES, etc.

Even when Oil of Citronella was low in price and easy to obtain, JAVONELLA was a reliable favorite. A great many manufacturers preferred its finer, cleaner odor, its uniform quality and consistent economy. And now that Citronella is so high in price and difficult to get, JAVONELLA is more important to you than ever before.

Write for Samples & Quotations

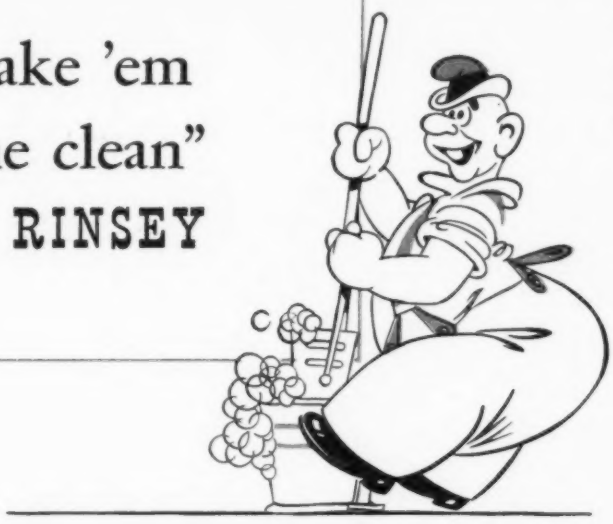
FELTON CHEMICAL COMPANY, INC.

599 JOHNSON AVE., BROOKLYN, N. Y.

BRANCHES IN BOSTON · PHILADELPHIA · CHICAGO · ST. LOUIS · NEW ORLEANS
LOS ANGELES · SAN FRANCISCO · MONTREAL · TORONTO · MEXICO CITY

MANUFACTURERS OF AROMATIC CHEMICALS, ESSENTIAL OILS, PERFUMES AND FLAVORS

"I make 'em come clean" *says* RINSEY



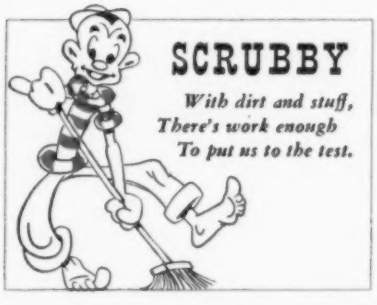
Rinsey's one of the "FLOORADORA BOYS." Singly, they're terrific — together, they're sensational. Give 'em a hand — turn 'em loose — and let 'em smooth things out for you.

"KINDLY LOOKIT how there's a great absence of dirt and stain on any expanse of floor which we Flooradora Boys have operated on.

"On the other hand you will no doubt take notice of a lustre more amazing than somewhat. You can dunk my head in my bucket if it's not a fact that we lads can zip out a job like this faster than any grade B job!

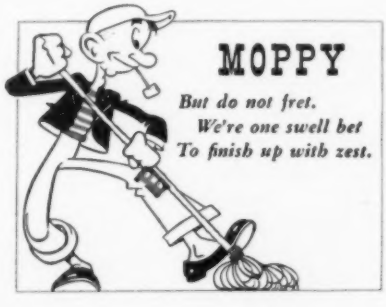
"*If,* mister . . . *if! If* you will kindly provide us artists with Davies-Young supplies, which are each of them fixed up to do a special job and do it better. Just ask the boss of any edifice where we've been in action with Davies-Young. *He'll* tell you! He'll say, 'Clip and mail that coupon!' "

• **BUCKEYE Liquid Scrubbing Soap** is for use on all surfaces that require a neutral soap to clean • **SANI-SCRUB** was developed particularly for cleaning rubber, rubber tile, asphalt tile, composition, mastic and cement • **FLOREX** is a balanced detergent, lower in soap content than Sani-Scrub • **NO. 30** is a neutral concentrate 30% to 32% anhydrous • **BEAMAX** is most effective in developing a protective lustrous film on all types of floor surfaces, after the floors have been prepared by the *right* type of Liquid Scrubbing Soap.



SCRUBBY

With dirt and stuff,
There's work enough
To put us to the test.



MOPPY

But do not fret.
We're one swell bet
To finish up with zest.

WAXEY

If, for supplies,
You'll realize
That DAVIES-YOUNG is best!

BUCKEYE • SANI-SCRUB • FLOREX • NO. 30 • BEAMAX

It is imperative that all floor surfaces be properly prepared for wax treatment by use of the above scrubbing soaps where their specific qualifications are required. Send for folder which gives complete information.

THE DAVIES-YOUNG SOAP CO.
DAYTON • OHIO

THE DAVIES-YOUNG SOAP CO.,
400 N. FINDLAY ST., DAYTON, OHIO

Please send folder on the treatment of floors and their proper maintenance.

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*Address*_____

*City*_____ *State*_____

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Caustic Soda

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Carbon Bisulfide
Carbon Tetrachloride
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Blanc Fixe

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Magnesium Oxide, Caustic Calcined
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Hydrated Lime
Hydrobromic Acid
Hydrogen Peroxide
Magnesol*
Methyl Bromide
Quick Lime
Sodium Sulfide
Strontium Hydrate

*Magnesol is a registered trade mark of the Westvaco Chlorine Products Corporation for a class of highly active magnesium silicates.

Westvaco CHEMICALS

WESTVACO CHLORINE PRODUCTS CORPORATION
405 LEXINGTON AVENUE • NEW YORK 17, N. Y.
CHICAGO, ILL. • GREENVILLE, S. C. • NEWARK, CALIF.

General Chemical "B&A" Reagent Acids and Ammonia

Quality* in *quantity shapes success...increases product potentialities. That's why, wherever *reagent grade mineral acids or ammonia in commercial quantities* are specified for industrial operations, General Chemical "B&A" high purity products are an outstanding choice nation-wide.

These reagents from America's foremost producer of mineral acids conform to exacting A.C.S. specifications. Their quality and purity are the result of General Chemical's progressive research and advanced reagent production technique, combined with invaluable "know-how" gained during almost half a century's manufacture of basic chemicals for industry.

Specify* and *rely on General Chemical "B&A" Reagent Acids and Ammonia for your operations. Remember...their dependability has been "proved in production" by America's leading manufacturers!

GENERAL CHEMICAL COMPANY

GENERAL CHEMICAL COMPANY
40 RECTOR STREET, NEW YORK 6, N. Y.

Technical Service Offices: Atlanta • Baltimore • Boston • Bridgeport (Conn.) • Buffalo • Charlotte (N. C.) • Chicago • Cleveland • Denver Detroit • Houston • Kansas City • Milwaukee • Minneapolis • New York Philadelphia • Pittsburgh • Providence (R. I.) • St. Louis • Utica (N.Y.)

Pacific Coast Technical Service Offices:
Los Angeles • San Francisco • Seattle, Wenatchee and Yakima (Wash.)

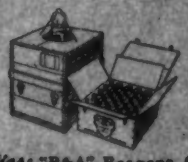
In Canada: The Nichols Chemical Co., Ltd. • Montreal • Toronto • Vancouver

B&A

General Chemical Reagent Acids and Ammonia are produced by the Company's Baker & Adamson Division, makers of laboratory reagents and fine chemicals since 1882. The experience of this Division with high quality chemicals embraces over 1,000 purity products.

• • •

"B&A" Sulfuric Acid, Reagent, A.C.S.
Sp. Gr. 1.84
"B&A" Hydrochloric Acid, Reagent, A.C.S.
Sp. Gr. 1.18—1.19
"B&A" Nitric Acid, Reagent, A.C.S.
Sp. Gr. 1.42
"B&A" Ammonium Hydroxide, Reagent, A.C.S.
Sp. Gr. .90
"B&A" Acetic Acid Glacial, Reagent, A.C.S.



Quantities: "B&A" Reagent Acids and Ammonia are available in carboys as well as in five-pint or one-pound bottles, which are obtainable in case lots or less.

• • •

Stocked at key locations throughout the nation.

JONES TOGGLE PRESSES

ECONOMY?

Certainly—
But Don't let it be too expensive

A sense of real economy has always distinguished American industry. But don't let economy become false. Old, worn out, noisy presses ruin costly dies, rack the nerves of employees, and produce cracked, unsightly cakes that fall apart in use. They are mighty expensive economy. "Keeping the old press going" by continually replacing one worn part after another soon costs the price of a new press; yet you have but old press performance.

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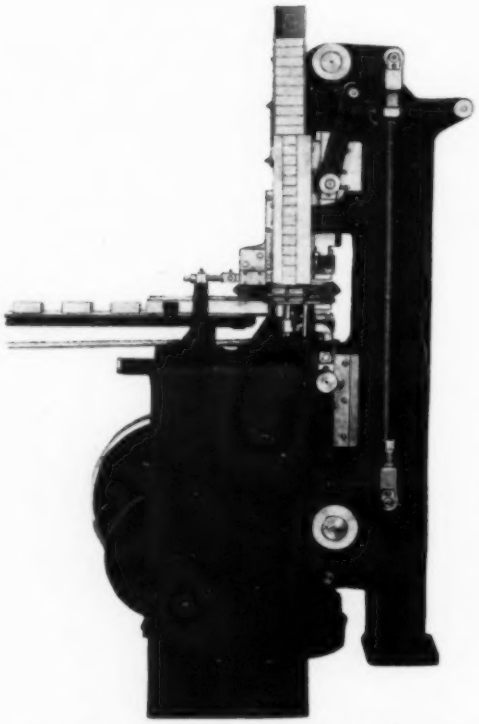

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AS THE EDITOR SEES IT

FEW opinions in regard to the outlook for 1945 are anything except gloomy. The immediate picture is discouraging, and it being typically American to view the future strictly in the light of current events whether they be favorable or otherwise, the opinion is prevalent that 1945 will hold little that is good. We note a cessation of talk about post-war plans. Evidently, fruition of such plans is further off than we had hoped. This war which we have been fighting with one hand while we prepared for post-war developments with the other, has become a heavier burden than we anticipated. And maybe some of the blunt criticism leveled at us by the British is not so far off the target. But there is the hope also that in 1945 we may begin to view world economic and political conditions as *they are,*—not as we believe they should be.

TURMOIL for business and industry is predicted before 1945 runs its course by General L. P. Ayres, banker and economist of Cleveland. A decrease in employment and an increase in strikes are looked for as well as a decline of some ten per cent in industrial production and a mounting of business failures. The Cleveland banker likewise does not take a very optimistic view of the problems of reconversion or of the effects of a sharp curtailment of purchasing by as large a customer of industry as the United States Government. In summing up the business outlook for the year, he appears to find the scales heavily overbalanced by unfavorable economic factors.

With the more or less unexpected course which the war in Europe has taken of late, and the possibility that we may spend a far longer time there to terminate hostilities, General Ayres may be somewhat ahead of schedule in his predictions for 1945. It may not be until 1946 that the situation develops as per his views. Nevertheless, the fundamental causes of the turmoil which he predicts will still be with us. The economic fiddler will still be standing outside the door waiting for his pay. And the thoughts which his dark predictions arouse can be little else but sober indeed.

WHERE can we get rid of some 200,000 pounds of a special low-titre soap in bars? The soap was reported recently sold as surplus by the Army, a type of soap used supposedly for washing parachutes, balloon coverings, and the like. The buyer, having no connection whatever with the soap industry or knowledge of this particular soap or any other soap for that matter, came to us to find out where he might sell his purchase, naturally at a profit. While seeking information as to where he might get rid of this lot of soap, he also informed us that further large quantities were likewise to be sold as surplus by the Army. And, then, he added the information that the Navy is still buying this same type of soap supposedly for the same purposes.

Remembering the days of 1919-20 when many a millionaire was made through deals in government surplus property, — and remembering also recent echoes from Washington that the same thing would not be permitted to happen again, — we received quite a jolt from the recitation of this

visitor. At the same time, we noted with interest Washington discussions over the make-up of the Surplus Property Disposal Board and the accusations that this too was destined to be a haven for deserving politicians. What this might mean in later disposal of surplus war goods, in spite of the high aims publicly declaimed as aspirants by members of this board, needs little elucidation. Repeated avowals that speculators will be excluded from the acquisition of war goods and that government departments and original suppliers would be given first opportunity to buy are in themselves not too reassuring. Industry would much prefer to see these high sentiments engraved in the law or in the regulations for its enforcement. Verbal promises, like pie crust, are often too fragile to be enduring.

IN response to a recent protest by a soap manufacturer that present ceiling prices on soaps are causing undue hardship to smaller units in the industry and threatening their continuance in business, OPA has answered in the expected manner. The manufacturer is told that main soap-making costs have long since been frozen, chiefly oils and fats, and labor, — that it would not be desirable to remove ceiling prices because ". . . the demand for soap is still above the supply and . . . inflation would result if ceiling prices were removed."

More than just fat and labor are required to run a soap plant. There are dozens of other important costs which are not covered by ceiling prices, and it is a varying increase in these latter which has helped to force up the over-all cost of delivering a finished bar of soap to a customer. Granted that although the per-hour wage of labor has not increased to any marked extent, — at least according to various and sundry statistics, — the total labor cost of completing any single job from producing a bar of soap to building a chicken coop is on the whole up very materially. OPA may quote the law, the Department of Labor, and all of its own statistics to refute this, but anybody who is operating any kind of an establishment, and particularly a factory employing so-called common labor, knows only too well today that such is a fact.

The OPA brief but courteous reply to the plaint of this small soaper has succeeded only in arousing his ire. With naive generalities, OPA glosses over the real basis of the complaint, patronizingly pats the soaper on the back, and passes the buck to his local OPA office. And incidentally, the soaper probably never meant "removal" of ceiling prices. The chances are he intended to say "relief" which is what he is seeking anyway. And if he does not get it, one more small soap plant may switch to the manufacture of other things at a time when there is need for every pound of soap which can be produced.

COMING at the worst possible time, a slump in fat salvage of "alarming" proportions has been reported by Alex Williams of the American Fat Salvage Committee. That there is going to be a greater need than ever over the next six months for every pound of salvaged household fat is quite apparent in view of soap requirements by the armed forces and other government divisions. A seasonal decline in collections of fat over the past few months was expected, but the drop in salvage went below any such expectations. Meat shortages may have been a factor, but the most likely explanation is a general let-down by housewives in all parts of the country. The answer to this may be a broadening of the publicity drive. But whatever the answer, it should be found as quickly as possible. A decline in fat collections could not come at a worse time.

DISHWASHING SANITATION

A Survey of Methods for Evaluating The Efficiency of Germicides Used for Dishwashing Sanitization

By A. S. Du Bois*
Onyx Oil & Chemical Co.

"DISHWASHING should be an important phase in the process of food preparation and serving. The customer should not only receive good food, well prepared, but he should have the food served on clean, sanitary dishes." In these words, Mallmann (29 b) presents the case for the sanitization of dishes, i.e., the process of rendering eating utensils free from disease bacteria and other organisms indicative of insanitary conditions (29 a).

There is little question that improperly cleansed and sanitized dishes constitute a health hazard. This was demonstrated by Lynch and Cumming (24), in 1919, in their classic investigations of the transmission of influenza and other saliva-born diseases from improperly cleansed eating utensils. Since that time, more and more interest has been focussed on this problem, with a consequent greater realization of its importance, as evidenced by the recent review of Hadfield (15).

As part of its program on the study of disinfectants, the Disinfectant Scientific Committee of the N.A.I.D.M. has recently undertaken the development of a laboratory method to evaluate the efficiency of chemical germicides used for sanitizing dishes. This survey aims to facilitate the task of the Committee by correlating the pertinent data reported in the literature. It is restricted to laboratory procedures and does not consider the regulatory aspects of the various methods, such as the area of the utensils to be examined, the methods of sampling, the manner of reporting the results, etc.

Most of the methods recorded in the literature can be classified into the two following groups:

a) swab-rinse plate-count tests
b) contact-plate tests

Methods not belonging to these two classes have been suggested, but they are only of minor importance. Fellers et al. (12) have reported that the direct microscopic examination of

utensils, after staining, suggested by Tonney (5), is almost a total failure. The same investigators also failed to obtain satisfactory results through the direct plating of broken glasses and cutouts from paper cups.

The rinse plate-count method (Multiple spoon test) has been suggested by Hadfield and Yates (16) and later by Cumming and Yongue (9) as a routine method for the examination of utensils. The latter recommend immersing 10 spoons in 200 ml. of a sterile salt solution, shaking for 3 minutes and plating. This method was considered by the American Public Health Association in 1936-7, (19), but it does not appear in the recommendations published in 1941-2 (21). No data could be found relating to the efficiency of this method. A rinse method has been found suitable for cylindrical containers with close-fitting tops (34).

The swab-rinse plate count and the contact plate tests have received considerable attention, and as a result a wide variety of modifications have been proposed. Some of these have achieved some degree of recognition by various public health authorities. These methods all have disadvantages but their acceptance as regulatory instruments did fulfill a definite purpose, and each will be considered regardless of its shortcomings.

Contact Plate Method

THE contact-plate method was originally developed by Hammer and Olson (18), for use in the dairy industry. They allowed a small amount of a 2.5 per cent agar solution to solidify in contact with the surface to be studied, transferred the agar to a sterile Petri dish with a sterile spatula and then incubated. Fellers et al. (12) found this procedure to be unwieldy and to result in too many failures. They reported that the recovery of organisms from glasses by this method was approximately 50 per cent. Speck and Black (34) suggested a modification for use with paper containers, which consisted of placing a small sterilized box inside the larger box to be examined and pouring agar between them. Following incubation, the outside box was carefully removed and the colonies noted. Walter and Hucker (36 a, b) found the original method as well as a few minor modifications to be unsatisfactory for use as a simple field procedure and suggested the following method: Clean No. 2 (3 7/16 inches in diameter) can covers, the concentric ridges of which have been flattened, are placed in Petri dishes so that the outside or top of the cover faces the bottom of the dish. The Petri dish and tin cover are sterilized in a hot air oven. The dish is then inverted and the bottom raised by means of a suction cup and 16 to 17 ml. of agar[1] are pipetted onto the tin cover and allowed to spread in an even layer. The bottom of the dish is replaced carefully and the agar allowed to harden. The contact plates are then stored at a low temperature (1.5°C.) until ready for use. For best results the plates should be used within 3 weeks. To carry out the test, the top of the Petri dish is raised and the contact plate is removed by means of a suction cup and placed on the surface to be tested. A slight pressure is applied and a contact period of approximately 4 seconds is allowed. The contact plate is returned to the Petri dish and incubated at 32° C. for 24 to 48 hours, depending on the type and number of colonies developing.

Upon using 6 consecutive contact plates on the same area, the average number of organisms picked up by the first contact plate was 46 per cent of the total on 44 dinner plates, the lowest value being 9 per cent and the highest 86 per cent. These results may not be representative, since the same colony may give up organisms to each contact plate (36a).

Swab-rinse Plate Count Methods

THE last method to be considered, and the one which has received the most favorable attention, is the swab-rinse plate-count method. A large number of variants have been proposed, and very little justification can be found for some of them.

[1] This agar contains 0.5% tryptone, 0.1% glucose, 0.3% beef extract, 1.5% agar, distilled water to make 1 liter, and is adjusted to pH 7.0. The addition of varying amounts of gelatin to this medium did not cause the agar to pick up more organisms (34a).

Briefly, the method consists of wetting a swab, held on a suitable applicator, with a suspending fluid, swabbing the utensil to be examined, returning the swab to the suspending fluid, shaking to dislodge the bacteria from the swab and then plating the fluid. Every step in this procedure will be examined in detail.

The type of swab used has been quite consistent. It is approximately 3/16 inch in diameter and ¾ inch long and consists of firmly twisted cotton, which may be absorbent or non-absorbent. No comparatve data is available on these two types of cotton for swabs.

The applicator which holds the swab is generally between 6 and 7 inches long. It may be held in place, within a test-tube, either by inserting it through a cork (22, 23a, 36a, 40) or a cotton plug (12), or else several may be placed together in a sterile envelope or screw-cap bottle. It is interesting to mention at this point, that Dearstyne (10) found that cotton plugs, used as stoppers, adsorbed enough suspending fluid upon shaking to account for 8 per cent of the number of bacteria in the fluid.

The most widely used type of applicator has been the wooden one, (2, 12, 13, 23a, 34, 35, 36a, 37), but others have been suggested in later years, namely, the "flexible wire" and the "stiff wire" (63 gauge) applicators, made of stainless steel (32, 36a, 40). A comparison as to the effectiveness of each of these types of applicators has been carried out by Walter and Hucker (36a). In laboratory tests, where the same area was swabbed from 4 to 6 times, they found that with the swabs on wooden applicators, the first swab accounted for between 11 and 65 per cent of the total number of organisms recovered while with those of the stiff wire type, 16 to 84 per cent (with an average of over 50 per cent) were recovered by the first swab. In routine examinations of restaurants, they found that in 11 out of 12 cases, higher counts were secured by means of the stiff wire, and also that the stiff wire always gave a higher count than the flexible wire. These results, however, are not strictly comparable, since dif-

ferent suspending liquids were used in each case. Otherwise, the indications are that the stiff wire leads to a more efficient swabbing, most probably because more pressure may be applied to the swab.

The swabs may be sterilized individually, either dry or in contact with the suspending liquid, or else a number of them may be sterilized together in envelopes or screw-cap bottles. The procedure is of course governed by the particular type of applicator used. For instance, the wooden type could not be sterilized in the suspending liquid, since it would become too limp (13).

Another feature relating to the swab itself is whether it should be dry, damp (1, 22, 23a, b, 30, 33, 35, 36) or wet (2, 3, 12, 29a, b, 36a, 37, 40). The damp swab is obtained by moistening, but not saturating the swab with the suspending fluid, while the wet swab is obtained by dipping the dry swab into sterile suspending fluid just before use and removing the excess fluid by pressing against the wall of the tube. Speck and Black (34) have shown that only one moist swab was not satisfactory on paper containers, since it yielded only 58 per cent of the number of bacteria recovered with one moist and one dry swab. France et al. (13) mention that dry swabs may be used on moist objects, although they are inefficient to remove bacteria from dry utensils. The same authors studied extensively the effectiveness of both the damp and the wet swabs. Upon swabbing the same area with two swabs, it was found that the percentage recovery by the first swab was about the same for both types, being 92 per cent for the damp and 95 per cent for the wet (wooden applicators employed). These values are at variance with those reported by Walter and Hucker (36a), who used damp swabs and reported that the first of 6 swabs picked up only about 35 per cent of the total number of organisms. However, France et al., allowed the swabs to be *thoroughly* disintegrated in the suspending liquid, whereas Walter and Hucker did not. Also, these investigators did not use the same suspending fluids. This may partially account for the discrepancy, as will be seen further in this survey. By making 3 successive swabbings with 3 different swabs, France et al. (11) showed that with 3 damp swabs, the first one recovered, on the average, 94 per cent of the total count, and that when a damp swab was followed by 2 successive wet swabs, the average for the first was only 80 per cent of the total, indicating that when only one swab is used, the wet swabs are substantially more efficient than damp swabs.

[2] Phosphate buffer solution: 34.0g. KH_2PO_4 are dissolved in 500 ml. of distilled water. The pH is adjusted to 7.2 with 1 N NaOH, and the solution made up to 1 liter with distilled water. 1.25 ml. of this buffer solution are added to a liter of distilled water.

Suspending Liquids

Various menstruum have been used as suspending fluids, notably, tap water (13), sterile water (31, 38), distilled water (22, 23b, 33), physiological saline solution (0.85% NaCl), (2, 12, 28, 29a, b, 36a) 1/N saline solutions (23a), Butterfield's phosphate solution[2] (13, 14, 19, 21, 36c, 39, 40), buffered broth (32, 32a), nutrient broth (3, 37), and beef infusion broth (26). The only available comparative data on this subject is that of France et al. (13). They have found that the highest percentage of survival (8.9%) of bacteria after 5 hours in the suspending fluid was with Butterfield's phosphate solution, while distilled water showed the lowest (1.3%). (Table 1)

The amount of suspending fluid used has varied between 0.75 ml. (29b), 3 ml. (12, 28, 36), 4 ml. (21, 36a), 5 ml. (22, 36a, 37), 10 ml. (23a, b, 29a), 40 ml. (34) and 100 ml. (13).

Table I*

Averages of Counts from Swab Suspensions in Various Fluids Held at Room Temperature—Counts at 5 Hours Calculated as Percentages of Counts at Beginning.

Fluid	*Original pH*	*% Survival*
Distilled Water	6.0	1.3
Distilled Water and K_2HPO_4	8.6	8.6
Physiological Saline	6.8	2.3
Butterfield's Phosphate Solution	7.2	8.9
Butterfield's Phosphate Solution and NaOH	9.9	8.0

*abridged from France et al. (13).

The question of the amount of bacteria retained by the swabs was studied by Walter and Hucker (36a). By transferring the same swab from the first tube to from 4 to 6 other tubes and plating, after shaking manually, they found that the first tube retained about 60 per cent of the total number of organisms obtained from all the tubes. Of course, this feature is dependent upon the method of shaking the swabs, since this is in a great measure responsible for the number of bacteria transferred from the swab to the suspending fluid. Dearstyne (10) had earlier demonstrated, that cotton plugs moistened with the suspending fluid and subsequently squeezed to dryness, still retain 20 per cent of the organisms.

Both hand and machine shaking of the swabs in the suspending fluid have been advocated. In the former case, it is usual to shake the tube energetically and to strike it against the palm of the hand either 25 (2, 12, 36a), 50 (22, 35) or 100 times (36a, c,). With machines, the Kahn shaking machine is usually favored (23a, b), the shaking being maintained for 10 seconds (35), 2 minutes (40), 3 minutes (23a), 5 minutes (23b), or 10 minutes (32). Speck and Black (34), state that thorough disentangling of the swab recovers an additional 21 per cent of the organisms. France et al. (13) favor complete disintegration of the swab by dropping it in 100 ml. of the suspending fluid and shaking until the swab is all fluffed out. It has been customary to remove the swab from the suspending fluid before plating, but of course, this is not the case with this last procedure. Thorough disentangling of the swab in the suspending fluid has been accepted by the A.P.H.A. (35).

The effect of using more than one swab on the percentage recovery of bacteria has received some attention. The studies of Walter and Hucker and of France et al. have already been quoted. Speck and Black (34) claim that an additional 21 per cent of the bacteria are recovered by the use of a second swab. They suggested using 1 moist and 1 dry swab, which yielded, after complete disintegration of the swabs, an average recovery of 83 per cent from inoculated containers. The

(*Turn to Page 70*)

GLASS CLEANERS...

a review of the formulation of glass cleaners, polishes and antimists

By Milton A. Lesser

THE prime function of a pane of glass, whether it be a window, a windshield or a store front, is to provide ample light and clear vision. It can perform neither of these efficiently if obscured by grime or dimmed by mist, raindrops or frost. To keep glass surfaces clear and bright, literally scores of cleaners, polishes and antimists have been developed and are described in the industrial and patent literature.

Provided as liquids, pastes, powders and cakes, cleaners and polishes are available to remove almost any type of dirt or grime encountered on glass surfaces. Liquid cleansing preparations are undoubtedly the most popular kinds of products and from the viewpoint of ease of application and immediately apparent results they have much to recommend them. From the manufacturing aspects, liquid cleaners are advantageous in that they are easy to formulate and package.

Most commonly used liquid cleaners for windows and windshields are clear solutions containing such varied substances as glycerine, glycols, alcohols, washing soda, soda ash, trisodium phosphate, borax, ammonia, kerosene and certain organic solvents. Occasionally, appropriate dyes are added to give distinctive colors to these clear liquids. The one disadvantage of products containing alkalis, alcohols or organic solvents is their possible injury to painted surfaces, hence contact with paints, varnishes, lacquers and enamels is to be avoided (1).

Although many of the constituents are used interchangeably, liquid cleaners and polishes may be conveniently classified on the basis of their main ingredients into four main categories. These include: (a) simple glycerine or glycol solutions; (b) alcoholic solutions; (c) organic solvents; and (d) alkaline cleansers. To these might be added another group of cleansers consisting of dilute aqueous solutions of synthetic detergents, such as sulfonated alcohol (2). Fairly new and comparatively expensive, these substances are sometimes added to other cleaners to improve the wetting properties.

To be successful a liquid cleaner need not be complex. Indeed one of the most popular of modern glass cleaners is said to consist solely of 3 per cent ethylene glycol, 97 per cent water and a trace of dye (3). One patented window-cleaning fluid is described as containing 8 fluid ounces of diethylene glycol, a small amount of ethyl alcohol, perfume, dyestuff and water to make about one gallon (4). Dilute glycerine solutions are also effective. When such liquids are applied to a window or windshield by means of an atomizer or cloth, the surface can be wiped with great ease and the dirt readily removed.

Methyl (wood), ethyl (grain) and isopropyl alcohols are all frequently used in the production of liquid cleaners. Indeed, denatured alcohol has been suggested as the sole ingredient of one type of cleaner (5), but more commonly water-alcohol mixtures are used. Many popular products consist essentially of about 15 to 25 per cent by volume of denatured alcohol, a trace of dye and sometimes a little perfume. In some cases a little glycerine or ethylene glycol is included (1). Often products of this class may contain small amounts of soap, ammonia, alkaline salts or synthetic wetting agents in addition to the alcohol and water.

Because of shortages and restrictions on grain alcohol and because of possible dangers inherent in wood alcohol, manufacturers have turned to isopropyl alcohol as a solution to many of their problems. Fortunately, isopropyl alcohol serves quite efficiently; its unpleasant odor being its chief disadvantage. This, however, can be overcome by the use of a suitable perfuming agent, and some very effective odor-neutralizing compounds for this purpose have been developed during the last year or so. Illustrative of such products, is one given in Belanger's (6) text. Said to leave windows, windshields, mirrors and such, clean and bright, and applicable as a spray or with a cloth, the solution contains:

Isopropyl alcohol	½ gal.
Water	1 gal.
White soap chips	2 oz.
Lemongrass oil	1 oz.
Methyl violet aniline	10 gr.

It is of pertinent interest that isopropyl alcohol is specified as a major ingredient of the series of glass-cleaning solutions recently patented by Flaxman (7).

Liquid cleaners for spectacles and lenses fall into this category, since the most suitable formulas are those containing a high proportion of alcohol. Such liquids are easily applied with a small atomizer, give a high polish quickly and volatilize off rapidly

so that little rubbing is required. Isopropyl alcohol, used alone, has been suggested as a lens cleaning fluid (8) and a simple mixture consisting of isopropyl alcohol and acetone in the proportions of about 3 to 1 has proved very satisfactory for cleaning eyeglasses (9). Such products should find additional sales in plants where protective goggles are worn.

Hydrocarbon solvents are the chief components of the third class of liquid glass cleaners and polishes. They owe their efficiency to the action of solvents on the dirt-holding, greasy films on the glass surfaces. Widely employed, such cleaners are generally applied with small pocket atomizers, but work quite satisfactorily when used on a cloth. These liquids are easy to prepare. One such product consists of V.M.P. naphtha plus 0.5 per cent of paraffin (2); while another is made from kerosene to which is added 0.25 per cent of paraffin (8). The small proportion of wax included in these cleaners is believed to provide a higher luster and to afford a certain amount of water repellent action (3).

To become a successful commercial product the formula for a windshield cleaner need not necessarily be complex. Many of the liquid cleaners contain a high proportion of alcohol.

A further modification is apparent in the following simple combination, which provides a volatile cleaner with excellent grease-removing properties (3, 8):

	Parts
Kerosene	65.00
Carbon tetrachloride	35.00

Other petroleum fractions have been employed in making hydrocarbon solvent cleaners. It is also possible to make emulsions with such solvents, the following being an illustrative example; with soap as the emulsifying agent (3):

	Per cent
Sodium bicarbonate	9.0
Sodium oleate	0.5
Kerosene	14.5
Water	76.0

Adding a little household ammonia, washing soda or borax to water are time-honored methods for cleaning windows and mirrors. It is not surprising, therefore, that manufacturers should also find that simple solutions of alkalis make very acceptable cleaners that have good sales potentialities. Trisodium phosphate is frequently used; one product consisting of a 4 per cent aqueous solution of this salt plus a little green dye to add a distinctive touch (3). Suitably colored solutions containing 1 per cent of sodium metasilicate have also been marketed (8).

A modification of the ready-to-use solutions are various dry products to be added to specified quantities of water to make suitable glass-cleaning liquids. In England, it has been suggested that small packets be prepared; each containing one-half ounce of dried sodium carbonate. The contents of one packet is added to a quart of hot water to make an effective alkaline cleanser (5). Another dry mixture which is effective, practical and inexpensive consists of equal parts of sodium perborate, sodium borate and trisodium phosphate; two teaspoonsful being dissolved in a quart of water to make a liquid window cleaner. A more elegant product, with a certain amount of convenience appeal, may be obtained by compressing

suitable alkalis into tablets. One such product is said (3) to contain:

	Per cent
Borax	89.0
Sodium metaphosphate	11.0

DESPITE the encroachment by clear liquid cleaners, products containing mild abrasives still maintain a good standing among glass-cleaners and polishes. They are especially valuable to combat heavy clinging dirt films on glass surfaces of all kinds. Available as pastes, powders, cakes and liquids; these products contain abrasives like precipitated chalk, calcined magnesia, crocus or rouge (iron oxide), tin oxide, and fine siliceous materials. In addition, they frequently contain soap, sodium carbonate, trisodium phosphate, or ammonium compounds to facilitate the removal of greasy grime (1).

Although some housewives use ordinary scouring powders or cake products for cleaning windows, mirrors and such, most people realize that the abrasives used in such products are far too harsh for glass surfaces. Many powders, especially designed for cleaning and polishing glass are available and their formulation is not especially difficult. Typical is a glass cleaning powder made from (2):

	Per cent
Powdered hard soap	15.0
Whiting	50.0
Calcined kieselguhr	25.0
White bole	10.0

The same source presents another formula based on:

	Per cent
Whiting	30.0
Precipitated calcium carbonate	50.0
Calcined kieselguhr	20.0

Feldspar is considered to be a particularly good abrasive for use on glass. One well known product based upon this mineral, together with an alkali salt and soap to wet out the dirt, contains (3):

	Per cent
Powdered soap	1.0
Soda ash	5.0
Powdered feldspar	94.0

A patented (10), nonscratching composition for cleaning and polishing automobile windshields also contains substantial quantities of this substance. An example given in the patent specifies the use of 12 parts of powdered feldspar, 8 parts of calcium carbonate, 0.75 parts of sodium bicarbonate, 3 parts of bentonite and sufficient water to make a homogeneous paste.

By proper formulation, it is possible to employ standard powder ingredients for making glass cleaners in cake form. One such is made from (8):

	Per cent
Finely powdered infusorial earth	40.0
Precipitated chalk	20.0
White soap chips	20.0
Boiling water	20.0

Dissolve the soap in the water and then add the powders which have been previously mixed and put through a fine sieve. Then press into molds and allow to dry. If desired the cake may be perfumed with a small quantity of a mixture such as one of equal parts of sassafras oil and cedar oil.

Of course, the patent literature presents its complement of molded polishing mixtures (11).

Because paste cleaners and polishes offer certain conveniences of their own, they command considerable interest. Generally applied with a rag, allowed to dry and then removed with a soft cloth to leave a high luster, such products are not especially difficult to make. Thus, a paste product for cleaning and polishing windows, windshields, mirrors and such is prepared by dissolving 10 parts of curd soap in 40 parts of warm water and 20 parts of denatured alcohol. Ammonia is added until complete solution is obtained. The solution is then worked up with a mixture of 50 parts of precipitated chalk, 30 parts of kieselguhr and 20 parts of kaolin to form a paste. This is allowed to stand for a day or so and then kneaded and transferred to containers. If desired, from 10 to 15 parts of glycerine may be used in place of an equivalent quantity of water to assure proper moisture retention (12).

Another paste product with like uses may be made from (13):

	Parts
Precipitated chalk	7.0
Tripoli	2.0
White soap	2.0
Water	4.0

Liquid preparations containing abrasives are sometimes preferred to pastes or powders. In some instances a soap is added or formed during the mixing. In the following liquid polish, presented by Vallance (14), morpholin oleate, a good emulsifying agent, is obtained when the ingredients are combined:

	Per cent
Morpholin	2.2
Oleic acid	2.5
Precipitated chalk	15.0
Magnesium carbonate	5.0
Kieselguhr	10.0
Water	65.0

In other instances, a mild abrasive is added to standard liquid cleaner components. However, products made in this way require shaking before use to resuspend the abrasive. An example of such a window cleaning fluid is given in Crowley's (13) text:

Ammonia (28%)	4 fl. oz.
Denatured alcohol	8 fl. oz.
Whiting	8 oz.
Water	7 pints

More specialized glass cleaners are sometimes mentioned in the technical and patent sources. For example, to clean skylights and similar heavily begrimed glass surfaces, it has been suggested that one-half part of soap and 2 parts of water be used with sufficient water to give a solution of the desired strength. The same source recommends that treatment with a solution of sodium bisulfate may also be used to remove dirt (5). The patent literature provides a jelly-like detergent for badly soiled glass surfaces (15). Its particular advantage lies in the fact that it will not flow to any great extent when applied to vertical surfaces, thus permitting prolonged action as required. However, as can be seen from its formula, this detergent is definitely not intended for use by any but professionals familiar with its dangers:

Hydrofluoric acid	8.0 gal.
Hydrochloric acid	3.0 gal.
Water	10.0 gal.
Glue	9.5 lb.
Glycerine	12.5 lb.

In a sense it might be said that glass cleaners and polishes and glass antimists or antidimming preparations supplement each other. However, one cannot overlook the fact that, properly applied, modern antimists also impart a lustrous polish of their own. Although such products have been known for a long time, it was not until the automobile began to fill the winter highways that real interest in antimist products was aroused. Other factors

have since contributed to the growing importance of these items.

ANTIMISTS are preparations that serve to prevent the "dimming" or "fogging" by rain and condensed moisture of automobile windshields and the "sweating" of windows by condensed moisture. Hence many of these preparations are designed to lower the surface tension of the droplets of water on the glass, causing them to coalesce and spread into a thin, continuous film (16). Such products also help to prevent the formation of frost or haze on glass surfaces during winter months. Special preparations have been made for spectacle and goggle lenses to prevent their clouding from perspiration in summer and temperature changes in winter.

Antimists may be made as solutions, pastes, sticks or pencils, and more recently, as impregnated cloths or papers. In former days glycerine, soap and salt formed the chief constituents of antimist preparations. Sometimes used alone, these ingredients were more commonly mixed to secure the advantages of each. Thus, one older type antimist or frost formation preventer was a simple mixture of (5, 8):

	Parts
Salt (sodium chloride)	1.0
Glycerine	16.0
Water	8.0

Various mixtures of soap and glycerine have enjoyed popularity to prevent condensation of moisture on glass surfaces. One such is a fairly simple paste made from (5):

	Parts
Yellow soap	4.0
Glycerine	2.0
Hot water	12.0

Several years ago a series of tests were made on various anti-dimming preparations by workers at the National Bureau of Standards (16). As judged by the results, straight glycerine seemed just as effective as any of the materials and mixtures tested. The only advantage noted in preparations containing precipitated chalk was ease of polishing. This was very marked, in contrast with the straight glycerine which required more polishing to give a clear film. Applied to a surface already wet, however, the glycerine displayed marked advantages over the other materials tested. None of the compounds investigated was effective on a surface containing dry oil, indicating the importance of clean surfaces.

Among the compositions studied was the following well-rounded paste:

	Parts
Soft soap	35.0
Precipitated chalk	37.0
Glycerine, U.S.P.	12.0
Water	16.0

Subsequent to these tests, the Chemical Warfare Service conducted considerable research on anti-dimming preparations for gas mask eye pieces. As a result of this work, described in the above report (16), the following formula was developed as giving the most satisfactory results:

	Parts
Sodium salt of sulfonated rape oil	100
Sodium hydroxide, C.P., powdered	20
Sodium silicate, syrup	5
Glycerine, U.S.P.	3
Commercial engine oil	3

Place the ingredients in a casserole in the order given and let stand with occasional stirring until the mixture is of such a consistency that it can be pressed into cakes. To make suitable antimist cloths, add 10 grams of this soap to 90 cc. of distilled water in a casserole, stir and heat until the soap is dissolved. In this solution place 30 loosely knit cotton cloths (1¼" x 2¼") and let soak until thoroughly impregnated. Then remove the cloths, let drain, and dry at about 60°C. Each cloth can be used for a large number of applications.

Of course other cloth-impregnating compounds have been described; one simple solution consisting of (8):

Glycerine	1 oz.
Sodium oleate	1 oz.
Water	5 qts.

Boil the ingredients together for five minutes, then immerse suitable cloths in the boiling solution for ten minutes. Dry without wringing.

The patent literature is also represented in this type of antimist product. One recently reported item consists of a non-linting cloth impregnated with a neutralized hydrocarbon derivative (17). Another patent describes a cleaner and antimist consisting of tissue paper impregnated with about one-half per cent by weight of pure sodium stearate (18).

Paste antimist preparations are also quite popular. A small amount of the material is applied to the glass and the surface thoroughly polished until no free paste remains. One interesting series of pastes described in Bennett's text contains the following ingredients; the proportions being in per cent:

	I	II	III
Soap	70	50	10
Glycerine, C.P.	30	25	85
Sulfonated castor oil	—	25	5

While these products may be used interchangeably, the first is intended for use on spectacles, the second on automobile windshields, and the third for car windows. In making these pastes, soap with fillers of any kind should be avoided. The amount of glycerine may vary according to requirements or to the soap used.

In 1940, the British Air Ministry (19) issued specifications for an antimisting compound consisting of:

	Per cent
Sodium oleyl sulfate	18.0
Titanium dioxide	27.0
Alcohol	33.0
Water	22.0

Other formulas for antimist pastes are available; one frequently mentioned (8, 13, 20) product being made from:

	Parts
Glycerine	8.0
Potassium oxalate	16.0
Spirits of turpentine	1.0
Camphor	0.125

This is quite similar to an antimist patented by Benton (21) in 1938. Liquid preparations are also easily made, and quite a few such products have been patented (22, 23). Rather interesting is Keenoy's (24) composition for inhibiting ice formation on windshields and similar glass surfaces:

	Per cent
Ethylene glycol	40.0
Glycerine	9.0
Formaldehyde	4.0
Water	47.0

Of growing importance and use are antimist pencils or sticks for use on goggles and spectacles. Misted goggles are a menace to industrial workers, but as remarked by Culler (25), perspiration fogging can be relieved to some extent by sweat bands, glycerine pencils or specially prepared soaps. Glycerine pencils can be made by heating 325 cc. of glycerine to the boiling point and dissolving into it 50 grams of stick sodium hydroxide. In a separate vessel,

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AUTO POLISHES

By Robert A. Stetson

PRIDE of possession and good common sense have always dictated regular cleaning and polishing of automobiles. Today, with the number of cars rapidly dwindling, auto care is more important than ever. And even though the prospect of resumption of automobile manufacture is in the offing, economists warn us that it will be several years before automobile production catches up with the pent-up demand. It is therefore quite obvious that automobile polishes and related products are in for an unprecedented demand in the next few years. Even though this demand will level off eventually, the market will probably be greater than during any prewar period.

It has come to be realized that polishes for automobiles must be designed to meet the conditions specific to car finishes. In the old days because the finishes bore some basic resemblance to each other, manufacturers used to recommend their products for both automobiles and furniture and, in some cases, even for floors. The kind of dirt and soil encountered in the open and on the road is entirely different from that met with inside the home. Hence a polish suitable for a car finish would in many instances be entirely too harsh for use on furniture. Abrasives, for example, are important constituents of auto body polishes, but many feel that they are out of place in a furniture polish. Similarly, polishes that serve efficiently on floors would find tough going when exposed to wind, rain and sun.

Although there is a certain amount of overlapping, automobile polishes may be conveniently divided into five main classes: (a) Polish emulsions, (b) cleaner polishes, (c) combined cleaning, polishing and waxing products, (d) pre-wax or rubbing cleaners, and (e) wax polishes. With the exception of a few products, more especially some in the last group, most modern automobile polishes are provided as emulsions. Hence they combine the benefits of the water-soluble or water-miscible cleansing agents with the polishing effects of oils and waxes.

To make stable combinations of the aqueous and oil phases, soaps, gums and, more rarely, special emulsifying agents are employed. Occasionally, combinations of emulsifiers are employed to secure superior products; the quantities of each being reduced proportionately. For example, soap-gum combinations are sometimes used, the soap reducing the gum's thickening tendencies, while the use of small quantities of soap lessens any streaking tendencies in the polishing operation. Although soaps are often used as such as the emulsifying agents, sometimes they are formed *in situ* during the mixing of the two phases. Thus, ammonia in the aqueous phase and oleic acid in the oil phase will combine during mixing to form ammonium oleate. In a few instances, the saponfying agent and the fatty acid are mixed in water and the reaction completed with heat and stirring.

When properly prepared, emulsion automobile polishes are among the most efficient and economical products. However, emulsion manufacture requires a certain amount of experience, with considerable attention to details such as temperature, careful combination of the two phases, thorough stirring and choice of appropriate emulsifying agents. Formulas suggested in the technical literature should be considered solely as starting points for experimental study prior to large scale production. It will generally be found that a product that stands up under laboratory conditions will work out very well in manufacturing practice.

Polish emulsions are quite easy to prepare and are intended for use after the car has been washed and may be applied, in most cases, while the body is still wet. Consisting essentially of water and oils, with soap as the emulsifier, these products produce a quite high luster with but little rubbing. However, the polish obtained with such products is of comparatively short duration since the gloss is produced by a not-too-permanent, thin, oil film (1). One fairly typical product of this type, described by Small (2), consists of:

	per cent
Light mineral oil	38.0
Castor oil	10.0
Potash soap	1.0
Water	51.0

A bit more complex, a commerical product includes naphtha as a solvent and diluent for the oil and wood alcohol to act as a wetting and spreading agent. In this case, triethanolamine stearate is formed during the mixing of the two phases to act as the emulsifying agent (3):

	Parts
Mineral oil	60.0
Naphtha	29.0
Stearic acid	9.0
Triethanolamine	4.3
Methanol	4.0
Water	120.0

Other products of the polish emulsion type have been described in the technical literature, including patents (4). One interesting series of this type has been developed and patented by Tumbler (5).

DIFFERING from emulsion polishes in that they contain mild abrasives to remove surface dirt with perhaps a small proportion of waxes to give a higher, more dur-

able luster, cleaner polishes are undoubtedly the most generally popular of automobile polishes. Available as liquids or pastes, such products rate their status because of their effectiveness in doing a combined cleaning and polishing job. They range from fairly simple combinations to products employing a large variety of ingredients; each aimed at performing a specific task in the product. Complexity should not be considered as any criterion of efficiency because many easily prepared cleaner polishes work quite well. A product which may be considered as basic for cleaner polishes is described (6) as containing:

	Per cent
Light mineral oil	11.0
Diatomaceous earth	13.0
Water-soluble gum	0.5
Glycerine	3.0
Water	72.5

Variations in components and proportions make possible a large number of cleaner polishes, as is evident in the following, composition containing a higher ratio of abrasive (7):

	Parts
Paraffin	8.0
Denatured alcohol	2.0
Kieselguhr	8.0
Gum tragacanth	0.25
Glycerine	2.0
Water	40.0

Using a combination of emulsifying agents and incorporating a small proportion of a hard wax, the formula given below presents a further modification of this double-action type of auto polish (2):

	Per cent
Light mineral oil	8.0
Carnauba wax	1.0
Glycerine	5.0
Water-soluble gum	0.2
Triethanolamine oleate	0.2
Diatomaceous earth	17.0
Water	68.6

Containing no abrasive, but having a good proportion of mixed waxes is the following car cleaner and polish which requires shaking before application, given by Crowley (8):

Castile soap	4 oz.
Bleached beeswax	4 oz.
Bleached ceresin wax	4 oz.
Paraffin oil	1 pt.
Raw linseed oil	1 pt.
Cedar oil	1 pt.
Potassium carbonate	½ oz.
Water	4½ qt.

As remarked by Tyler (6), most cleaner polishes are provided as liquids, but a few paste products are available; the following being a simple, but typical example:

	per cent
Mineral oil	13.0
Diatomaceous earth	30.0
Sodium stearate soap	3.0
Water	54.0

Aside from the generally more complex formulas available in standard reference sources such as Glickman's (9) article, the patent field offers several examples of various cleaner

polish combinations. Blount and Flaxman (10,11), for example, in their patent specifications suggest the use of a fine abrasive, blown castor oil, light mineral oil, gum tragacanth as an emulsifier and thickener, isopropyl alcohol and about 50 per cent of water as the components of a cleaning automobile polish.

ALTHOUGH experienced operators are somewhat skeptical of products which are said to combine cleaning, polishing and waxing effects (1), these triple-action items find frequent recommendation in technical sources. Containing quite a high ratio of various soft and hard waxes, many of these products also incorporate a fairly large percentage of abrasive cleaners. Since some of these abrasives have a hardness rating higher than those of soft infusorial earths, they must be used with a certain amount of caution to avoid removal of the protective car finish.

As might well be expected, these triple-action products contain, on the average, more ingredients than are required for items that are not expected to give such combined effects. Indicative of such products is the following formula of British origin (12):

	per cent
Tripoli	13.5
Colloidal china clay	1.5
Carnauba wax	3.0
Yellow beeswax	1.5
Paraffin wax (50°-55°C.)	1.0
Naphtha or other solvent	25.0
Stearic acid	3.0
Triethanolamine	1.5
Water	50.0

In the stock formula (3,8) given below, the physical character of the finished product, whether liquid or paste, is determined by the type of abrasive employed. Said to be a combined cleaner and polisher that leaves a bright, hard film when lightly polished with a dry cloth, it contains:

	parts
Carnauba wax	9.0
Beeswax	4.0
Ceresin wax	4.0
Naphtha	75.0
Stearic acid	7.0
Triethanolamine	2.7
Water	75.0
Abrasive	25.0-60.0

The type of abrasive used in this basic formula will determine the method of adding the scouring agent. An oil-absorbing abrasive should be well mixed with the hot oil portion before it is added to the soap solution; this last made by adding the triethanolamine and stearic acid to the water, heating to 100°C. and stirring till smooth. On the other hand, an abrasive that absorbs water is best stirred into the finished emulsion. Thus an abrasive of the latter type, such as bentonite, used to the extent of 25 parts, produces a paste with the above base, while 60 parts of the former type, like tripoli, forms a liquid auto polish.

If a soft paste combined-action product is desired, the following quite simple combination may serve (7):

	parts
Yellow wax	10.0
Air-floated tripoli	18.0
White spirit	19.0
Soft soap	0.5
Water	2.5

Here, too, the patent literature offers examples of suitable combinations for cleansing and polishing automobile bodies. One such (13) specifies the use of 20-25 per cent of a petroleum distillate, 5 to 10 per cent of hard carnauba wax, 1.25 to 3 per cent of a high molecular weight fatty acid, 0.75 to 2 per cent of borax, 1 per cent or less of morpholine, 6 to 10 per cent of a suitable abrasive (e.g., "Semilite") and from 30 to 60 per cent of water.

PROFESSIONAL automobile polishers know that best results are obtained by the use of two products, one to clean the body surface of dirt and grime and another to provide a hard, durable wax finish. To meet the first need, specialized pre-wax rubbing compounds have been developed to remove adherent road dirt, old polish, deteriorated finish or the like. For this purpose, they contain a high proportion of harder abrasive cleaners together with other ingredients to facilitate the job. Pastes are generally preferred, but liquid pre-wax cleaners are also widely used.

According to Small (2), when a soap is used to make a paste pre-wax cleaner, it is always employed in the form of a soda soap which promotes a thicker consistency. Waxes are also employed to give the requisite paste-like character, as in the following representative product (6):

	per cent
Tripoli	27.0
Kerosene	25.0
Soda soap	3.0
Beeswax	4.0
Paraffin wax	4.0
Water	37.0

Considerable interest has been shown in a product developed in Russia and accepted by the Zis auto works. Described as a paste polish for automobiles in the report (14), its high abrasive content would indicate that it is more in the order of a pre-wax cleaner. To be homogenized in a paint mill after mixing, the paste contains:

	per cent
Household soap	4.05
Glycerine	6.75
Kerosene	19.30
Dibutyl phthalate	3.55
Abrasive	50.00
Water	16.35

By raising the water content, liquid pre-wax cleaners may be prepared with materials like those used in paste products. Sometimes alkaline cleaners, such as trisodium phosphate, are included in compounds for cleaning automobiles before waxing, as in the formula given below (8):

Diglycol stearate	1	lb.
Kerosene	¼	gal.
Trisodium phosphate	4½	oz.
Water	12	pints
Fuller's earth	12	oz.

When making the above product, the Fuller's earth should be worked into the emulsion only after the basic combination has been permitted to cool and age overnight.

WAX polishes, generally available as dispersions of wax mixtures in naphtha or other organic solvents, are applied after thorough cleansing of the automobile body finish with products such as those described above or by thorough washing. When properly used, the resulting tough, durable, glossy film is generally worth the real work required. Fairly easy to prepare, these wax polishes call into use both hard and soft waxes of various types including those of mineral origin. Thus, according to Smither (15) of the Na-

tional Bureau of Standards, a paste wax may be made by the following formula:

	parts
Carnauba wax	2.0
Ceresin	2.0
Turpentine	3.0
Gasoline	3.0

By increasing the amount of solvents, liquid wax polishes may be obtained. Another example of the wax type auto polish, suggested by Glickman(9), uses naphtha as the solvent for the mixed waxes:

Yellow carnauba wax	5¾ lb.
Ozokenite wax	8½ lb.
Paraffin wax (130°F.)	¾ lb.
Naptha	2 gal.

A further modification appears in Crowley's(8) text:

Carnauba wax	4 oz.
Montan wax	2½ oz.
Paraffin wax	5 oz.
Mineral oil	5 oz.
Turpentine	3 qts.

Of course the patent literature has its complement of wax polishes (16). Of particular interest is a no-rub, emulsified automobile polish developed by Thompson (17). Polishes of this sort, so successful for use on floors, never appeared to work when used on automobiles because they lacked the necessary waterproofness and resistance. According to Thompson's patent, this difficulty is overcome by the use of a "booster" consisting of casein made insoluble by treatment with zinc sulfate or other compounds. Added to the usual no-rub wax ingredients, the presence of the booster is claimed to give a polishing liquid that dries quickly, is waterproof and lasts a long time even under adverse conditions.

SINCE polishing cloths have been so successfully used on furniture, silver and the like, it is not surprising that similar products should be developed for use on automobiles. While perhaps offering no serious competition to standard polishing preparations, products of this type do offer a certain convenience, especially when it is necessary to do a quick job. To make such cloths, pieces of flannel are immersed in a hot solution like the one described below (8), run through a wringer, and packaged in cellophane envelopes or other suitable container:

	parts
Petrolatum	4.0
Stearic acid (double pressed)	6.0
Oleic acid	12.0
Methyl salicylate	0.5

From time to time one sees mention of so-called automobile polishing "powders." Apparently not widely used, a product of this type may be made as follows (7):

Oleic acid	2	lb.
White mineral oil	12	lb.
Carnauba wax	2½	lb.
Yellow beeswax	2	lb.
Water	28	lb.
Triethanolamine	13	oz.
Infusorial earth	100	lb.
Powdered gum tragacanth	4	lb.

The first four ingredients are melted together with gentle heating. In a separate vessel, the solution of triethanolamine and water is heated to near the boiling point. Add the oil-wax mixture to the aqueous solution in a slow stream with constant stirring and maintain at below boiling temperature until a smooth emulsion has formed. Remove from heat and continue stirring until cold and then add the infusorial earth. Mix well and allow to dry until all the water has evaporated. Finally add the tragacanth powder, mix thoroughly and sift. By adding sufficient water to make 1 gallon, and mixing thoroughly, 8 to 12 ounces of this powder will serve to make an acceptable automobile polish.

Although all-steel bodies will eventually make such products rather obsolete, there are enough old cars on the roads to make auto top dressings of current interest. Because weather resistance is a prime consideration, rather than gloss or luster, on an automobile top, products of this type differ materially from body polishes and cleaners. Although rather complex auto top dressings have been described in the patent literature,(18) a rather simple and easily prepared product, as described by Bennett, is made from:

Orange shellac	4 oz.
Denatured alcohol	1 gal.
Castor oil	½ oz.
Spirit-soluble nigrosine	sufficient

More in line with products already discussed is the following top wax for automobiles:(8)

Paraffin wax	13-5/16 lb.
Ceresin wax	15-1/3 lb.
Carnauba wax, No. 1	15 lb.
Mineral spirits	13-½ gal.
Carbon black	15 oz.
Nigrosine dye, oil-soluble	4 oz.

MOST people, including professionals, prefer to wash down a car with a stream of water from a hose without bothering with auto body soaps or similar cleaning compounds. Nonetheless, no discussion of this kind could be considered complete without some consideration of such products. Formerly, vegetable soft soaps with good sudsing properties were rather widely used. However, because failure to rinse thoroughly tended to leave streaks on dark cars, such soaps lost much of their popularity, but are still used to some extent on light-colored body finishes.(1)

Later, emulsion products were developed for auto body cleaning. Typical is the compound described by Glickman;(9) this to be used in the proportion of about 4 ounces in 3 gallons of water:

	Parts
Kerosene	90
Ammonium linoleate soap	20
Water	90

More recently a new series of car-cleaning compounds have appeared on the market. Said to be highly efficient and without the disadvantages of older products, these new cleaners employ synthetic "soapless" detergents, such as sulfated fatty alcohols or the like as their basic ingredients. Generally provided as concentrated aqueous solutions, these products are considerably diluted with water before use.

Products of the type described have proven their worth in the cleaning and polishing of modern auto finishes. However, it must not be forgotten that the war has brought the development of superior protective coatings for automotive equipment. Just how this will affect the auto polish field cannot be predicted, but if the past is any criterion, improvements in finishes should not greatly alter the picture with regard to modern polishes. However, it might be well to keep abreast of progress in auto finishes so as to make any adjustments that may be necessary.

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TRADE NEWS. . . .

Bryan Gillam Sales Head

Gillam Soap Works, Fort Worth, Texas, whose new plant is nearing completion, has just announced

CLAUDE E. BRYAN

the appointment of Claude E. Bryan as sales manager, effective Dec. 4. Mr. Bryan had been with Swift & Co. in the southwest for more than 22 years, the last 16 of which he was Fort Worth district sales manager of Swift's soap division. In his new capacity with Gillam, he will be in charge of sales for the company, having a four state territory. Mr. Bryan also has worked for Armour & Co. and Procter & Gamble Co. in other territories in the South. He began work with Swift & Co. 23 years ago as a soap specialty salesman in Little Rock, Ark., receiving subsequent advancements until he became a district manager of the four state territory with Fort Worth as his headquarters. Mr. Bryan served in the first World War, and has a son, Eugene, who is a Naval aviation lieutenant, stationed in the southwest Pacific.

May Cancel BIMS Dinner

Although the annual winter dinner of the BIMS of New York is scheduled to be held the evening of Jan. 25 at the Hotel Lafayette, University Place and Ninth St., there is some doubt that the dinner will be held at all, due to the critical meat supply and labor conditions in New York. According to Martin Schultes, of Hewitt Soap Co., chairman of the New York group, a luncheon meeting of the committee was scheduled to be held at the Hotel Lafayette, Jan. 4, to make a final determination as to whether or not the dinner would be held and, if so, how many could be accommodated. An announcement of the decision was to be forthcoming following the committee meeting, Mr. Schultes said. If the dinner is to be held a limited number will be accommodated.

New Soap Co. Formed

A new soap company, New South Mfg. Co., 711 Bankhead Ave., Atlanta, Ga., has been formed and was scheduled to begin operations Jan. 1, 1945. Officers of the new company include: John R. Scott, president; John T. Hogan, general manager, and Andreas Treffler, soapmaker and chemist.

Beecher Joins American Soap

J. B. Beecher, for many years in charge of eastern sales for B. T. Babbitt Co., New York, recently joined American Soap Powder Works, Inc., Brooklyn, as sales and advertising manager. In his new connection, Mr. Beecher will be responsible for the promotion throughout the metropolitan New York area of the company's new water softener, "Tish."

New Concern to Make Chemicals

G and G Chemical Co. has recently started operations at 700 West Broadway, Hopewell, Virginia, specializing in the field of dry cleaning and laundry chemicals. They will manufacture dry cleaning soaps, as well as spotting fluids. One of the two principals in the new concern is Ernest Gaskins.

Leo Peck a Major

Captain Leo G. Peck, AUS, treasurer of Peck's Products Co., soap manufacturers, St. Louis, who is with

CAPTAIN LEO G. PECK

the American First Army in Europe, was recently advanced to the rank of Major. He joined the armed forces as a private, Feb. 20, 1941, shortly after being graduated from the University of Missouri. Maj. Peck, 26 years old, landed in Normandy, France, a few days after "D" Day.

C-P-P Honors 50-Yr. Employee

M. H. Richards, premium buyer for the past 50 years for Colgate-Palmolive-Peet Co., Jersey City, N. J., was recently honored at a special lunch tendered by E. H. Little, president. Mr. Richards was given a gold watch in recognition of his many years of service to the company.

Alexander Kirk U. S. Ambassador

Alexander C. Kirk, member of the Chicago soap family of former years, was nominated by Pres. Roosevelt last month to be U. S. Ambassador to Italy. Prior to the entry of Italy into the war, he had been chargé d'affairs at Rome and before that had served in various diplomatic posts.

Soap Makers To Meet Jan. 12

The annual meeting of the soap industry, held in conjunction with the 18th annual meeting of the Association of American Soap & Glycerine Producers, will be held at the Waldorf-Astoria, New York, January 12. The meeting will start with lunch at 12:00 noon and a program of talks will follow, scheduled to last through 4:00 P.M. This open meeting will be preceded in the morning by a session of the board of directors of the AASGP and by a meeting of the Potash Soap Section of the Association, both being scheduled for 10:00 A.M.

E. H. Little of Colgate-Palmolive-Peet Co., president of the Association of American Soap and Glyceride Producers will preside at the afternoon session, and will introduce a unmber of speakers from government departments who will inform the attending soap makers as to the latest developments on matters of concern to them. Election of new directors and officers of the AASGP is also scheduled. The following nominations have been made for membership on the board of directors: by the nominating committee of the association.

H. D. Banta, Iowa Soap Co.; H. F. Bernhard, Pioneer Soap Co.; C. E. Bertolet, Laurel Soap Co.; O. M. Burke, Manhattan Soap Co.; F. A. Countway, Lever Brothers Co.; N. S. Dahl, John T. Stanley; R. R. Deupree, Procter & Gamble Co.; S. S. Fels, Fels and Co.; D. M. Flick, Armour & Co.; E. B. Hurlburt, J. B. Williams Co.; E. H. Little, Colgate-Palmolive-Peet Co.; F. H. Merrill, Los Angeles Soap Co.; E. A. Moss, Swift and Co.; G. A. Wrisley, Allen B. Wrisley Co., and C. F. Young, Davies-Young Soap Co.

Speare Supply Leases New Quarters

Speare Supply Co., manufacturer and jobber of laundry chemicals, has leased a one-story industrial building containing 24,000 sq. ft. of floor space, at Union and Ford Avenues in Chicago, and will occupy the structure after remodelling has been completed.

Seek Soap for Poland

Chicago school children have been asked to cooperate in a "Soap for Poland" drive, sponsored by the Polish Civilian War Relief organization of that city.

Fred Theile Dies

Fred C. Theile, president of P. R. Dreyer Inc., New York, died December 3 at the Englewood Hospital, Englewood, N. J. He had been in poor health for several years, but was believed to be recovering and had been back at work for a number of months. Mr. Theile was a graduate of Rutgers University and a veteran of the first World War. He established his own pharmacy in New Jersey after graduation from Rutgers and was later employed by National Aniline & Dye Corp., American Aniline Products, Inc., and Charles V. Sparhawk Corp. He joined P. R. Dreyer Inc. in 1925, and upon the death of P. R. Dreyer in 1932 became president of the firm. He leaves a widow and two sons, Frederick, Jr. in the U. S. Navy, and Kenneth, a student at Lehigh University.

FRED C. THEILE

C-P-P Bonus Announced

An annual bonus, equal to one week's salary was voted by the board of directors of Colgate-Palmolive-Peet Co., Jersey City, N. J. The bonus was to be paid to all office and factory employees in the employ of the company on Dec. 1, 1944, who are not on a regular commission or bonus plan and who had worked the equivalent of 12 of the 18 months immediately preceding Dec. 1, 1944. It was also announced that for the third consecutive year the bonus would apply to employees in the armed forces who had worked that length of time immediately before entering the service.

Prack to Distribute "Kemsuds"

Prack Laboratories, New York, were named recently New York distributors for "Kemsuds" by the manufacturer, Chemical Corp. of Springfield, Mass. Prack have specialized in the manufacture of skin creams for a number of years, and are now enlarging their sales organization. They plan to add several new items to their line. The production of a new type skin conditioning cream for industrial workers was announced recently by the company.

Kilcommons Chemicals Changes

A change in name and corporate structure of Kilcommons Chemicals Corp., Providence, R. I., merchants and distributors of soaps, oils, textile specialties and chemicals was announced recently. The new name is Textile Chemicals Corp. of Rhode Island. James A. Kilcommons resigned as treasurer and director and ceased being a stockholder concurrent with the change in name. At the same time, Fred Weller was elected vice-president and appointed general manager of the corporation.

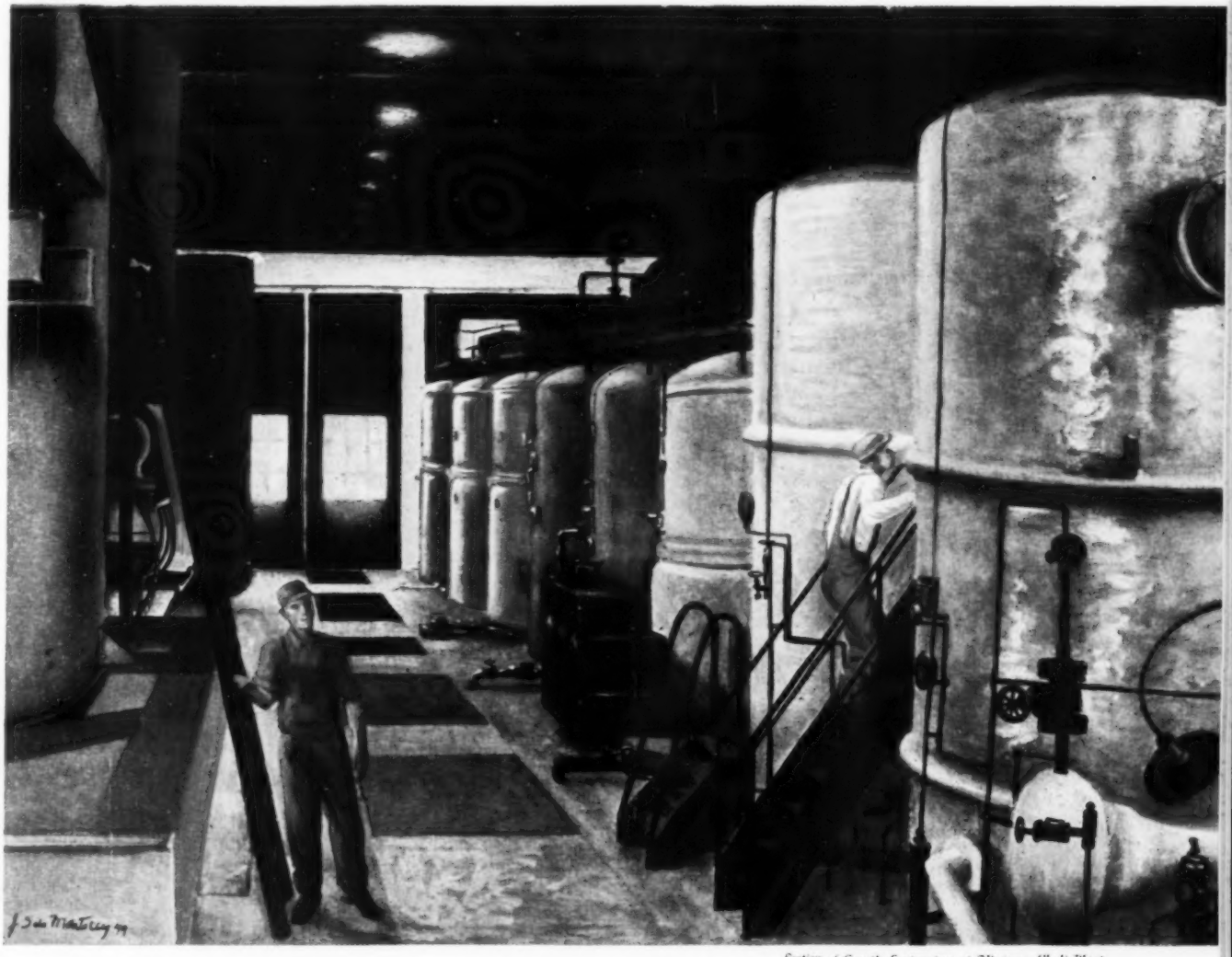
Bushes Celebrate 40th Anniversary

Burton T. Bush, president, Bush Aromatics, Inc., New York, perfuming materials house, and Mrs. Bush celebrated their fortieth wedding anniversary the week-end of Dec. 9, which was climaxed by a dinner Dec. 10 at the Essex Fells (N. J.) Country Club. Their four children, including Lt. B. T. Bush, Jr., and his wife and daughter from Long Beach, Calif., seven grandchildren and fifty close relatives and friends were on hand for the celebration.

Name Hornney Eastern Rep.

A. G. Hornney, eastern representative for J. L. Ferguson Co., manufacturers of "Packomatic" packing machinery, Joliet, Ill., has been made eastern manager for U. S. Bottlers Machinery Co., as well as Burke Machinery Co., Baltimore, and the Ferguson Company. He succeeds Paul Kuhn who has formed his own business. Mr. Hornney will make his headquarters at 545 Fifth Ave., New York.

Timely Experience . . .



Section of Caustic Evaporators at Niagara Alkali Plant

• • • WHEN NIAGARA was called upon to expand and increase its production for war purposes, its long pioneering experience proved of tremendous value in meeting unprecedented demands swiftly and efficiently. When the time comes to step back into peacetime production, Niagara's increased facilities plus its added war experience will prove of equal value in meeting the demands of industries that use electrochemical products. If you are among those who will need a completely reliable source of supply and highly skilled technical assistance in the use of such products, we invite you to submit your problems to Niagara Alkali Company.

Niagara ALKALI COMPANY

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CAUSTIC POTASH • CAUSTIC SODA • PARADICHLOROBENZENE • CARBONATE OF POTASH • LIQUID CHLORINE

WFA Directs Fat Salvage

Direction of the program for salvaging used household fats has been transferred from the War Production Board to the War Food Administration, it was made known recently in a joint announcement. Although no changes in the current phase of the campaign are anticipated, it is hoped to intensify fat salvage to bring collections up to the 230 million pounds a year goal. At the present time, according to Roy W. Peet, of Colgate-Palmolive-Peet Co., Jersey City, N. J., chairman of the American Fat Salvage Committee, the current rate of collections is 156 million pounds a year—22 per cent under the amount originally asked for. The OPA will still continue to offer two red points for each pound of used fats turned in. The need for continuing the salvage of used household fats, even after the end of the war in Europe, was stressed by various government officials at the time of the announcement of the transfer of the agency responsible for the program.

Bobrick Making No. 13 Dispenser

Bobrick Mfg. Corp., Los Angeles, soap dispenser manufacturers, announced last month the resumption of limited production of its Model No. 13 liquid soap dispenser. In addition, the firm, which is now in its 39th year, hopes to have available in the near future Model No. 21, another liquid soap dispenser of the "push-in" type originally introduced in 1940. In addition, there will be a new streamlined, all-metal powdered soap dispenser, according to the Bobrick announcement, designed for use with any kind of powdered soap. In addition to manufacturing dispensers in a limited quantity, Bobrick is producing hydraulic valves and precision parts for fighting aircraft.

New Clifton Liquid Soap

Clifton Chemical Co., New York, soap and sanitary products manufacturers, have just announced a new type concentrated liquid soap, which, it is claimed can be used for a number of purposes. The new soap is said to differ from other liquid soaps in that it has a molasses-like consistency combined with a "syrup-like continuity." Thus, when diluted in water, it is claimed, surface tension is reduced more than usual. The soap has an unusual fragrance and is buffered so as to have a minimum alkali content.

Hercules Sells Mass. Plant

The plant and property of Hercules Powder Co., at Stoneham, Mass., was acquired by George Mann & Co., of Providence, R. I., heavy chemical merchants, effective Dec. 1, it was announced recently. Complete stocks of heavy chemicals will be maintained and distributed from this new plant, in addition to their service from Providence. Donald C. Knapp, who has been with the company for 20 years, will be in charge of sales.

Conklin Again Heads Foragers

Walter A. Conklin has been renominated by acclamation for president of the Foragers of America, of which group he has been president for the past year. The annual meeting of the Foragers was held at association headquarters in the Midston House, New York, Dec. 28, with the annual party scheduled for Jan. 5.

Pepsodent-Lever Salesmen Meet

Salesmen of Pepsodent Co., Chicago, and Lever Bros. Co., Cambridge, Mass., recently merged companies, were scheduled to meet in Chicago, Jan. 3, to study the Pepsodent plan of drug store merchandising. On Jan. 1, the merger of the two concerns went officially into effect, with the Pepsodent division taking over the entire drug sales force of Lever Bros. to operate in conjunction with its own. The sales organization is to be divided into 10 divisions with headquarters in New York, Chicago, Cleveland, Philadelphia, Atlanta, New Orleans, St. Louis, Minneapolis, Dallas and Los Angeles.

Permutit Elects New Officers

Permutit Co. of New York, manufacturers of water conditioning equipment, announced late last month the election of W. Spencer Robertson as chairman of its board of directors and Henry W. Foulds as president. Mr. Robertson has been president of the company for the past 15 years, while Mr. Foulds has been executive vice-president since 1935. Prior to that time, he had been a vice-president and director of Goulds Pumps, Inc., and a vice-president of Servel, Inc.

The House For Men, Inc., Chicago, recently placed on the market a new guest size, soap bar with strong masculine appeal. Each bar weighs 4½ ounces, fits a man's hand and is suitably perfumed with a masculine "North Woods" fragrance. The bars are packed four to a box of burgundy and gold color, wrapped in a gold-stamped burgundy wrapper of leather design.

. . . She has her favorite . . . its consistent appeal is your sale. . . . Whatever it be, it must be uncompromised . . . faithful to her preference . . . definite and lasting . . .

There is no need for compromise with FLORASYNTH'S ESSENTIAL AROMATICS.

BERGAMOT
SYNTHETIC

is one of a proven practical line noted for its faithful reproduction of the natural products.

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Geranium Synthetic
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Florasynth LABORATORIES, INC.
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DALLAS 1 • DETROIT 2 • MEMPHIS 1 • MINNEAPOLIS 2 • NEW ORLEANS 13 • ST. LOUIS 2 • SAN FRANCISCO 3 • SEATTLE 4
Florasynth Labs. (Canada) Ltd. — Montreal • Toronto • Vancouver • Winnipeg Florasynth Laboratorios de Mexico S. A. — Mexico City

GUY L. MARSTERS

HERMAN L. BROOKS

DCAT Officers Named

Officers of the Drug, Chemical and Allied Trades Section of the New York Board of Trade elected for the next fiscal year by the executive committee, Dec. 13, meeting at the Drug and Chemical Club, New York, include: chairman, Guy L. Marsters, vice-president, Norwich Pharmacal Co.; vice-chairman, Harold M. Altshul, president, Ketchum & Co.; treasurer, Robert B. Magnus, vice-president, Magnus, Mabee & Reynard (re-elected); and acting secretary, Miss Helen L. Booth. The retiring chairman, E. T. T. Williams, Becton, Dickinson & Co., automatically becomes a member of the Section's advisory council.

At a meeting of the board of directors of the parent organization, the New York Board of Trade, held Dec. 19, two officers from the drug, chemical and allied trades were named. Ralph E. Dorland, of Dow Chemical Co., is first vice-president, while Herman L. Brooks, president, Coty, Inc., was elected a vice-president.

ROBERT B. MAGNUS

Soap Pricing Amended

An amendment to the OPA regulation governing the prices for new or changed soap products, announced Dec. 28, contains the following two major points: 1.) all the former provisions designed to protect the consuming public against evasive or manipulative practices in connection with the marketing of soap are continued in full; and 2.) Manufacturers may now apply to the OPA for the establishment of price of new or changed products without being required to show that inability to market such products would subject the manufacturers to substantial hardship. The amendment, effective Jan. 2, 1945, revokes Commodity Practices Regulation No. 1, and applies to all new or changed cleaners except bulk soaps and cleaners, soapless detergents and soap products containing less than 20 per cent anhydrous soap. The OPA action is covered by Amendment No. 4 to Maximum Price Regulation No. 391.

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Rug Cleaners Convene Feb. 12-13

The first annual national convention of the National Institute of Rug Cleaners will be held at the Hotel McAlpin, New York, Feb. 12 and 13, 1945, it was announced late last month. George Seedman, president of the American Business Congress, will open the meeting with an address Monday morning at 10:00 a.m.; the rest of the morning session will be a business meeting. A speaker from the soap industry (not yet announced) will discuss "Soaps vs. Synthetics" in the opening speech of the afternoon session. Other industry problems, including those of consumer and postwar nature will be taken up at Monday afternoon and Tuesday morning sessions. A series of round table discussions will occupy the afternoon of the final day of the meeting, which will be followed by a banquet in the evening.

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Kranich Undergoes Operation

Herbert Kranich, president of Kranich Soap Co., Brooklyn, has just returned to active duty after six weeks in Brooklyn Hospital, during which he underwent an abdominal operation.

Continue WFO-53 Suspension

The War Food Administration has continued until March 31, 1945, the current partial suspension of WFO-53 which restricted the use, processing and delivery of animal, neat's foot and red oils.

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Chicago Drug Assn. Xmas Party

The Chicago Drug and Chemical Association's 42nd annual Chirstmas stag party was held at the Drake Hotel, Dec. 21, with the traditional turkey dinner, a floor show and a drawing of gifts around a Christmas tree as features of the evening's entertainment. Harry E. Dunning of Albert Verley, Inc., was chairman of the banquet and entertainment committee.

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Fritzsche Bros. Security Plan

Fritzsche Bros., Inc., New York essential oils and chemical preparations firm, have just announced an enlarged program of personal security and protection for their employees. To its original group life insurance plan, established in 1921, the company has added such things as disability benefits covering sickness, accident and death, as well as surgical expense for employees and hospitalization for employees and their dependents.

GOOD, LOW COST*

ODORS for Sprays

FLY
THEATRE
HOUSEHOLD
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*Use and profit by the facilities of this leading source of spray perfumes and made-to-order odorants. Write for catalog or consultation.

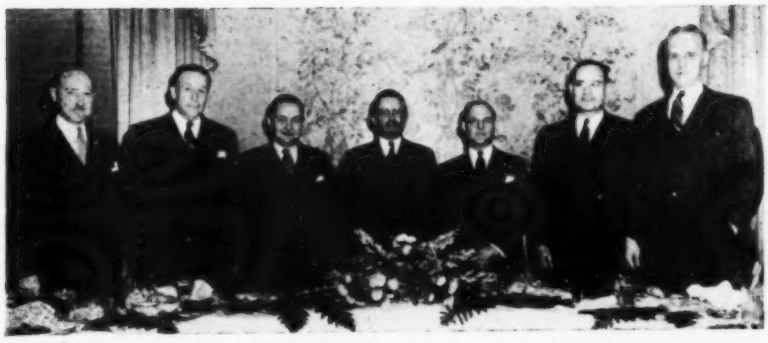
FRITZSCHE BROTHERS, Inc.

PORT AUTHORITY COMMERCE BLDG., 76 NINTH AVENUE, NEW YORK, N. Y.

BRANCH STOCKS

BOSTON CHICAGO LOS ANGELES ST. LOUIS TORONTO, CANADA MEXICO, D. F.

FACTORIES AT CLIFTON, N. J. AND SEILLANS (VAR) FRANCE



Givaudan-Delawanna, Inc., New York, executives attending the annual sales banquet of the company at the Essex House, New York, Dec. 13, the third and final day of the annual sales convention included (left to right): Francis N. Bangs, corporation counsel; Dudley F. Lum, Chicago district manager; Harold F. Duffy, controller; Dr. Eric C. Kunz, president; Ralph M. Stevenson, sales manager, in charge of the convention; Dr. Max Luthy, plant manager and George Warren, assistant sales manager.

Givaudan Has Double Celebration

Commemorating a half century since the formation of the Givaudan organization in Geneva, Switzerland, and 20 years since the establishment of Givaudan-Delawanna, Inc., in the United States, the company recently published an illustrated 32-page booklet, "You and Your Job," for its employees. It contains a brief history of the company, a description of its scientific and production achievements, a note of the uses to which Givaudan products are put and a statement on the company and the war.

Post War Plans for Detergent

E. I. du Pont de Nemours & Co., Wilmington, have announced that a new synthetic detergent developed for use of the armed forces, will be offered to the public after the war. The detergent is described as a sulfonated compound, known at present only under its laboratory label of "M P 476." It is currently employed in salt water soaps for Army and Navy use, and, being sudsless, it reduces rinsing requirements for dish and clothes washing, it is said. The company claims it can be produced at a cost competitive to soap.

Former C-P-P Export Mgr. Dies

Edwin A. Sager, 51, formerly export manager for Colgate-Palmolive-Peet Co., Jersey City, N. J., died at his home, in Oceanside, L. I., Nov. 27. He had been employed in the Nassau County Department of Public Works for the last two years. He is survived by a widow, Marion, librarian of the Oceanside Free Library; a daughter, Janet; a sister, Mrs. Douglas Haig, and a brother, Cornelius J. Sager, all of Oceanside.

Verley Guilty of Contempt

Dr. Albert Verley, 79, well known perfumery and cosmetic chemist, was found guilty of contempt of court, in Chicago, recently, by Federal Court Judge John P. Barnes for violating an order enjoining Dr. Verley from using his name in connection with the manufacture of perfume and cosmetics. The injunction was issued with Dr. Verley's consent, Feb. 12, 1943, after he had been paid $37,000 by Albert Verley & Co., Chicago essential oil and synthetic aromatic chemical firm, to relinquish all rights to his name in the perfumery and cosmetics business.

General Drug Co. Moves

The offices of Aromatics Division of General Drug Co., Brooklyn, were scheduled to be moved Jan. 6 to 125 Barclay St., New York 7, the *World-Telegram* Building. The company's warehouse and laboratories are to remain at 644 Pacific St., Brooklyn, their location for many years, and former site of the offices.

Sterling Soap Moves

Sterling Soap & Chemical Co. has just announced its removal to new and larger quarters at 9th and Church St., Wilmington, Del.

WFA Asks Soap Output Reports

Soap makers who used more than one million pounds of fats and oils in a year are now required to report, by Jan. 15, 1945, on form FDO 42b-1-1, their annual soap production and production capacity to the Fats and Oils Branch of the War Food Administration. This action is made necessary by amendment to WFO No. 42b, issued by the War Food Administration, Dec. 19. According to a Soap Association bulletin on the subject, the order was issued by WFA at the request of the Armed Forces "to facilitate the meeting of requirements of the Armed Forces and the Office of Distribution for soap." An estimated 90 soap manufacturers come under the terms of the order.

Pacific Alkali Co. Sold

Pacific Alkali Co. of Los Angeles, producers of soda ash, laundry soda, sodium sesquicarbonate and packaged washing crystals, has been sold to the Columbia Chemical division of Pittsburgh Plate Glass Co., Pittsburgh, it was announced on December 9. The Pacific Alkali plant, established in 1926, is located at Owens Lake, near Lone Pine, Calif., and includes 200 acres of land and soda works employing 45 men.

Soap in Glass Making

According to *Pioneer,* monthly house organ of Niagara Alkali Co., New York, an unusual use for soap has been developed in the glass industry. For grinding the edges of hollow glassware, the worker soaps the hand holding the glass in order to enable the glass to rotate freely while being held. Household soap has been replaced for this purpose by a liquid soap made of 3 parts of rosin, 3 of synthetic drying oil and 2.4 kg. of potash lye, the article states.

Compagnie Duval Moves

Compagnie Duval division of S. B. Penick & Co., essential oils house, New York, has recently announced the removal of its laboratories and offices to new headquarters at 50 Church Street.

Fire won't wait!

THERE must be quick action . . . materials for charging fire-fighting apparatus must be available for instant use.

That is why Cole Laboratories, Inc., Long Island City, N. Y., package their Foam Liquid and Speed Foam Drench in Crown cans. Completely protected by Crown cans, Cole products are kept laboratory-fresh . . . always ready for life—and property-saving service.

CROWN CAN COMPANY
NEW YORK • PHILADELPHIA
Division of Crown Cork and Seal Company
Baltimore, Md.

CROWN CAN

BIDS AND AWARDS

WFA Soap Purchases Announced

In recent openings for miscellaneous supplies by the Office of Distribution of the War Food Administration, Washington, D. C., the following soap purchases have been announced: Lever Bros. Co., Boston, 310,000 cakes of toilet soap, 15.46c a pound; Andrew Jergens Co., Cincinnati, 5,197½ pounds of soap at 15.6c a tube; Colgate-Palmolive-Peet Co., Jersey City, N. J., 600,000 pounds of laundry soap at 5.6c a pound; 21,333 cases of yellow laundry soap, 4.04c a bar; 3,888,000 bars of toilet soap, 5.55c a bar; 1,200,000 bars of laundry soap at 4.04c, and 6,336 one-ounce sticks of shaving soap 6.1c per stick; Fels & Co., Philadelphia, 600,000 pounds of laundry soap, 6.4229c; Procter & Gamble Dist. Co., Cincinnati, 600,000 pounds of laundry soap, 6.63c; and J. Eavenson & Sons, Camden, N. J., 196,875 pounds of toilet soap, 18.99c, and 196,875 pounds of toilet soap at 21.962c a pound.

P. O. Toilet Soap Bids

In a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., the following bids were received on 12,450 pounds of toilet soap for New York, Chicago, Atlanta, Kansas City, and San Francisco; Wm. Messer Corp., New York, fob Glendale, N. Y., 12.28c, fob New York, 12.9c, fob Chicago, 12.9c, fob Atlanta, 13.9c, fob Kansas City, 13.9c and fob San Francisco, 14.9c; Stahl Bros., Glendale, N. Y., fob Glendale, 10.45c.

Navy Scouring Compound Bids

Among the bids received in a recent opening for miscellaneous supplies by the Bureau of Supplies and Accounts, U. S. Navy Department, Washington, D. C., on 82,260 pounds of scouring compounds for eastern and western yards, were those of: Pacific Chemical Co., Los Angeles, 4.25c; Chemical Packaging Co., Berkeley, Calif., 3.1c; Kay Tee Products Co., Brooklyn, 3.7c; North Coast Chemical & Soap Works, Seattle, 6.3c; Lavo Co. of America, Milwaukee, 3.89c; Stafford Co., Burnsville, N. C., 82,260 pounds at 2.3c; Chemical Engineering Co., Dallas, 8.4c; Penetone Corp., Tenafly, N. J., 9.2c, and Dixie Chemical Co., New Orleans, 8c.

FWA Soap Bid

Dixie Janitor Supply Co., Washington, D. C., submitted the only bid of $18 a barrel (four barrels in all) on 1,200 pounds of scouring soap in a recent opening for miscellaneous supplies by the Office of Buildings Management, Federal Works Agency, Washington, D. C.

WFA Soap Purchases

In recent openings for miscellaneous supplies by the Office of Distribution, War Food Administration, Washington, D. C., the following soap bids and awards were announced: blue streaked laundry soap; Armour & Co., Chicago, 92,500 pounds at 17c per pound (accepted); toilet soap, Hershey Estates, Hershey, Pa., 150,000 pounds at 17c a pound (accepted).

Navy Soap Dispenser Bids

The following bids on 4,190 liquid soap dispensers were received in a recent opening for miscellaneous supplies by the Navy Department, Bureau of Supplies and Accounts, Washington, D. C.: Moore Bros. Co., New York, $1.40 for chrome plated metal and glass containers, and 80c for plastic; West Disinfecting Co., Long Island City, $1.60 for item 1, and $1.72 for lot 1a; and Clifton Chemical Co., New York, all metal, item 1, $2.44, and $2.54 for lot 1a.

Brittingham Shave Soap Bid

The low bid of 32.9c per pound on 1,200 packages of shaving soap, entered by N. Brittingham & Sons, Philadelphia, was accepted in a recent opening for miscellaneous supplies by the Procurement Division of the U. S. Treasury Department, Washington, D. C. Other bidders included J. B. Williams Co., Glastonbury, Conn., with 35.28c per package; Wm. Messer Corp., New York, 34.6c and Unity Sanitary Supply Co., New York, 35c.

P. O. Furniture Polish Bids

Oil Specialties & Refining Co., Brooklyn, entered a low bid of 58c on 700 gallons of liquid furniture polish in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C. Other bidders and their bids were: Penetone Corp., Tenafly, N. J., 58.8c per gallon; Kirsch Co., Sturgis, Mich., $1.19; Industrial Distributors, New York, 70c; International Metal Polish Co., Indianapolis, 80c; Mirrolike Mfg. Co., Long Island City, N. Y., 65c; Fuld Bros., Baltimore, 60c; Imperial Products Co., Philadelphia, 68.6c; Wm. Messer Corp., New York, 93c; R. M. Hollingshead Corp., Camden, N. J., 59c; and C. T. Baker & Co., Philadelphia, 73c.

Treasury Dept. Polish Bids

The following bids were received in recent openings for miscellaneous supplies by the Procurement Division of the Treasury Department, Washington, D. C.: item 1, 18 gallons of furniture polish—C. T. Baker & Co., Philadelphia, 73c a gallon; J. A. Tumbler Labs., Baltimore, 95c a gallon, and Solarine Co., Baltimore, 60c a gallon; item 2, 1,200 containers of shoe polish — Knomark Mfg. Co., Brooklyn, 13.75c a jar; Whittemore Bros. Corp., Cambridge, Mass., 5.55c for 2½ ounces; Roman-Aetna Blacking Corp., Brooklyn, 7.5c for 3⅛ ounces, and N. Brittingham & Sons, Philadelphia, 8.4c for 3¾ ounces.

Lane Joins Standard Synthetics

James Lane, formerly of Burroughs Wellcome Co., New York, has been appointed an executive of Standard Synthetics, Inc., New York, essential oils house, in which capacity he will assist Standard's president, Edward Remus, and J. L. Hindle, technical director. Mr. Lane has had wide and varied experience in the drug and allied fields.

schimmel

for

fly spray perfumes

These double duty perfumes are fragrant and refreshing and also mask the odor of synthetic killing agents. When inquiring, please specify whether you wish a perfume or purely neutralizing effect.

SCHIMMEL & CO., INC.
601 WEST 26TH STREET
NEW YORK 1, N. Y.

NEW TRADE MARKS

The following trade-marks were published in the December issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Mark Applications

BLOSSOM TIME—This in upper and lower case script letters for soap. Filed June 16, 1943 by Hewitt Soap Co., Dayton, O. Claims use since Mar., 1941.

OLD ORCHID—This in upper case, extra bold letters for brushless shaving cream. Filed June 29, 1943 by Medicated Products Co., Chicago. Claims use since Jan. 10, 1933.

RAYDIZED—This in upper case, extra bold letters for multi-purpose cleaner and polisher. Filed July 24, 1944 by Vita-Var Corp., Newark, N. J. Claims use since May 15, 1944.

PARTHENON — This in upper case, bold letters for soap. Filed July 28, 1944 by Anna Kiriakos, Detroit. Claims use since Apr., 1940.

SOLVADINE — This in upper case, bold letters for detergent and spotting compounds in liquid form. Filed Aug. 4, 1944 by Ciba Co., New York. Claims use since Mar. 14, 1940.

TERGAVON—This in upper case, bold letters for detergents in powder and flake form. Filed Aug. 4, 1944 by Ciba Co., New York. Claims use since Mar. 8, 1940.

GAY 16—This in upper and lower case, inline letters for soap. Filed Aug. 22, 1944 by National Toilet Co., Paris, Tenn. Claims use since Feb. 12, 1942.

QUAKER DIANOL—This in upper case, bold stencil letters for cleaning materials. Filed Aug. 29, 1944 by Quaker Chemical Products Corp., Conshohocken, Pa. Claims use since Nov. 30, 1939.

KROGER'S AVALON CHLORITE—This in upper and lower case, bold, block and script letters on a lined circular background for washing and cleaning compound. Filed May 17, 1940 by Kroger Grocery & Baking Co., Cincinnati. Claims use since Aug. 1, 1937.

CLEAN-O-LIZING—This in upper and lower case script and block letters for cleaning fluid for animal furs. Filed Feb. 26, 1944 by J. Roth & Son Co., New York. Claims use since 1931.

CELIROC—This in upper case reverse letters upon an oval design for sweeping compound. Filed Apr. 15, 1944 by Celiroc Insulation Co., Birmingham, Ala. Claims use since Nov., 1942.

SPEED — This in upper case, open, and upper and lower case, bold letters for shoe polish. Filed May 3, 1944 by Speed Mfg. Co., Roxbury, Mass.

RELIEF — This in upper and lower case, shadow, script letters for spot and stain remover. Filed Sept. 21, 1944 by H. D. Dunaway Co., Atlanta. Claims use since 1935.

VITA-VAR—This in upper and lower case, black bold, italic letters for insecticide. Filed Aug. 16, 1944 by Vita-Var Corp., Newark, N. J. Claims use since Mar., 1932.

MERCITAN—This in upper case, bold letters for antiseptic and germicidal preparation. Filed July 31, 1944 by L. D. Caulk Co., Milford, Del. Claims use since Dec. 8, 1921.

PENGRIS—This in upper case, extra bold, black letters for chemical preparation in powder or liquid form for removing oil or grease from all types of metal. Filed Aug. 12, 1944 by Marshall Engineering Co., Milwaukee.

EMYCEL—This in upper case, bold stencil letters for mildewproofing composition. Filed Aug. 17, 1944 by Roxalin Flexible Finishes, Inc., Elizabeth, N. J. Claims use since 1941.

BATHASWEET — This in upper and lower case, bold script letters for bubble bath, toilet soap and bath mitts. Filed Aug. 5, 1944 by C. S. Welch Co., New York. Claims use since June 8, 1938.

LYNMARK—This in upper and lower case, bold script letters for shaving cream and soap. Filed Sept. 14, 1944 by Lynette Perfumes, Inc., New York. Claims use since Aug. 21, 1944.

NODOR—This in upper case, extra bold letters for household deodorant. Filed Oct. 30, 1943 by McKim Dental Service, Port Chester, N. Y. Claims use since Feb. 1, 1943.

LOVO-DENT—This in upper and lower case, bold script letters for dentifrice. Filed Aug. 5, 1944 by Oxford Laboratories, San Francisco. Claims use since Jan., 1944.

LIQUID EL VAMPIRO—This in upper and lower case, reverse script letters on an oval background for liquid insecticide spray. Filed Aug. 14, 1944 by Allaire, Wodward & Co., Peoria, Ill. Claims use since Nov. 1, 1923.

STRAN — This in upper and lower case, extra bold, black letters for shampoo. Filed Aug. 28, 1944 by Procter & Gamble Co., Cincinnati. Claims use since July 24, 1944.

PLASTI GLYST—This in upper case, bold stencil letters for glass, plastic, etc., cleaning preparation. Filed June 21, 1944 by Turco Products Inc., Los Angeles. Claims use since Jan. 1, 1944.

LIGNO — This in upper case, extra bold stencil letters for metal surface cleaning compounds. Filed June 21, 1944 by Turco Products, Inc., Los Angeles. Claims use since Feb. 1, 1944.

ETHYL — This in extra bold, black letters for dry cleaning preparation. Filed Aug. 29, 1944 by Ethyl Corp., New York. Claims use since May 29, 1944.

METALEX—This in upper case, bold stencil letters for metals cleansing preparations. Filed Feb. 4, 1944 by MacDermid, Inc., Waterbury, Conn. Claims use since May, 1940.

PENETREX—This in upper case, bold stencil letters for metals cleansing preparation. Filed Feb. 4, 1944 by MacDermid, Inc., Waterbury, Conn. Claims use since May, 1939.

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THE GUARDIAN LINE—This in upper and lower case, bold, script and block letters for insecticides, roach powder, fly spray, disinfectants, and deodorants. Filed July 8, 1944 by Palmer Co., Waukesha, Wis. Claims use since Jan. 1, 1944.

D'ARCY DUCKETTES — This in upper and lower case, extra bold script letters for baby soap in the shape of ducks. Filed May 21, 1943 by Cora Martin D'Arcy, Indianapolis, Ind. Claims use since Dec., 1941.

VEEGOR — This in large and small upper case, bold letters set in the top line of an inverted triangle above the fanciful drawing of an Indian's head for soap powders, soapless cleaners, etc. Filed June 27, 1944 by Northwest Chemical Co., New York. Claims use since Mar. 7, 1941.

B-H-4 — This in upper case, extra bold, black block letters for pine oil, house cleaning compound. Filed Aug. 9, 1944 by Trio Chemical Works, Brooklyn. Claims use since Nov., 1940.

CRYSCOAT—This in upper case large and small, extra bold letters for metal cleaning preparation. Filed Aug. 24, 1944 by Oakite Products, Inc., New York. Claims use since Aug. 10, 1944.

ETHYL—This in upper case, reverse letters across the top of a solid triangle all within a circle for liquid detergent cleaning preparation. Filed Aug. 29, 1944 by Ethyl Corp., New York. Claims use since May 29, 1944.

WATER SPRITE—This in upper case, bold letters for toilet soaps. Filed Sept. 22, 1944 by Charles of the Ritz, Inc., New York. Claims use since Sept. 20, 1944.

ROMITE—This in upper case, extra bold, black letters for liquid, glass, metal and tile cleaner. Filed Sept. 28, 1944 by Roman Cleanser Co., Detroit. Claims use since Mar., 1944.

CONVERSATION PIECE—This in upper case, bold letters for soap. Filed Sept. 29, 1944 by Charles of the Ritz, Inc., New York. Claims use since Sept. 25, 1944.

ACCO—This in upper case, bold letters for toilet soap. Filed Sept. 30, 1944 by Acme Chemical Co., Milwaukee. Claims use since Dec., 1916.

FOREVER—This in upper case, extra black bold letters for moth proof liquid. Filed Sept. 11, 1944 by Odora Co., New York. Claims use since Aug. 28, 1944.

PURR—This in upper case letters formed by leaves across a baton, within an oval formed by a lined pattern running to the edges of a rectangle, for cleaner and polisher. Filed June 15, 1944 by Nufin Co., Lancaster, Pa. Claims use since June 15, 1943.

WATAWAX—This in upper case, large and small, extra bold black letters for automobile and furniture polishing and cleaning compound. Filed Sept. 4, 1944 by J. E. Johnson & Co., Chicago. Claims use since Dec. 1, 1936.

Trade Marks Granted

409,856. Water soluble detergent. Filed by Pepsodent Co., Chicago, June 1, 1944. Serial No. 470,838. Published Aug. 15, 1944. Class 4.

409,860. Toilet soap. Filed by Campana Sales Co., Batavia, Ill., June 13, 1944. Serial No. 471,181. Published Aug. 15, 1944. Class 4.

409,899. Furniture polishing oil. Filed by Standard Oil Co. of New Jersey, Wilmington, Del., Oct. 27, 1943. Serial No. 464,452. Published Aug. 22, 1944. Class 16.

409,909. Mildew and fungi preventive. Filed by George B. Smigel, Brooklyn, N. Y., Jan. 14, 1944. Serial No. 466,595. Published Aug. 15, 1944. Class 6.

409,926. Cleanser for painted surfaces, etc. Filed by Paint-Nu Products Co., Los Angeles, Apr. 13, 1944. Serial No. 469,293. Published Aug. 22, 1944. Class 4.

409,977. Detergent soap powder. Filed by Fink-Roselieve Corp., New York, June 14, 1944. Serial No. 471,375. Published Aug. 22, 1944. Class 4.

A new type fire extinguishing material will be available for civilian use in the post-war period. Developed as a war-time product, it has proved invaluable in fighting stubborn fires around airplanes, on shipboard, etc. Its record in the production of "Speed Foam Drench" recently put Cole Laboratories, Inc., Long Island City, N. Y., in line for an Army-Navy "E" Award. A star has recently been added to The Cole "E" pennant for continued production excellence, Cole Laboratories being the only manufacturer in its particular field to be so honored. Because of restrictions due to present wartime conditions, this extinguisher is available at present only for the armed forces. According to David Catts, head of Cole Laboratories, one gallon of "Speed Foam" solution will produce approximately 350 to 400 gallons of fire extinguishing foam. It is particularly useful for extinguishing gasoline or oil fires.

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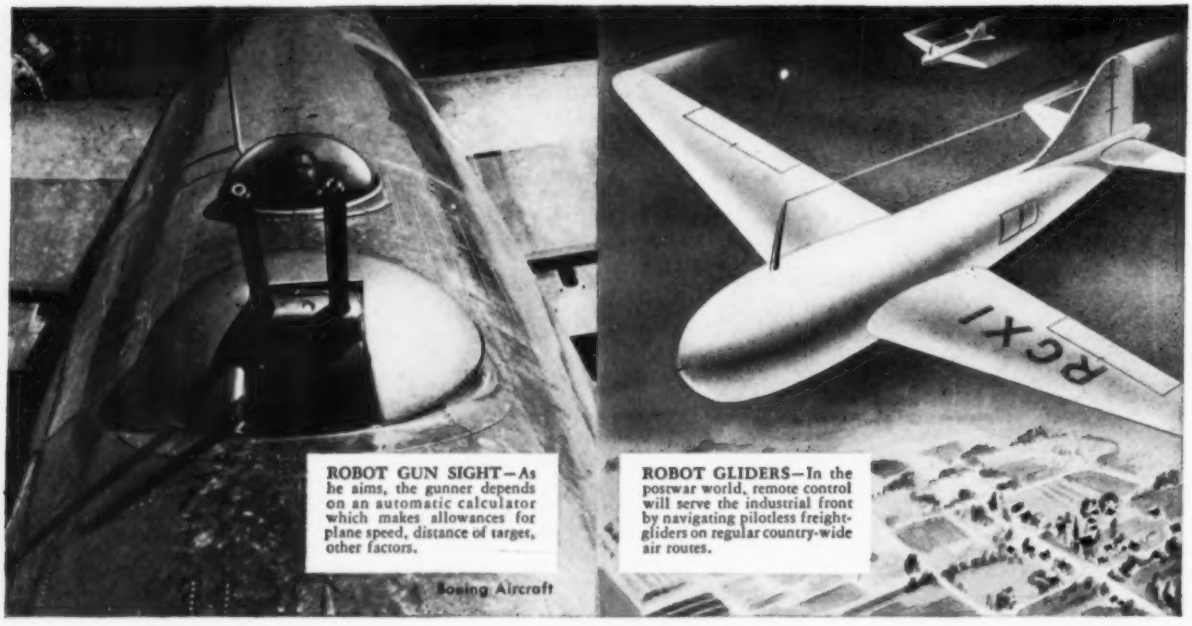

ROBOT GUN SIGHT—As he aims, the gunner depends on an automatic calculator which makes allowances for plane speed, distance of target, other factors.

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ROBOT GLIDERS—In the postwar world, remote control will serve the industrial front by navigating pilotless freight-gliders on regular country-wide air routes.

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AMMONIUM CHLORIDE • CAUSTIC POTASH
MODIFIED SODAS • AMMONIUM BICARBONATE
SODIUM NITRITE • PARA-DICHLOROBENZENE
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RAW MATERIAL MARKETS

As of Jan. 2, 1945

REVIEWING the U. S. production of fats and oils from domestic materials in the 1943-44 crop year, U. S. Department of Agriculture figures show an approximate 11.2 billion pound output, the largest on record. The 1943-44 yield was about three billion pounds above the 1937-41 average. Lard output in the 1943-44 crop year reached a new high level of nearly 3.5 billion pounds, which was a reflection of the record 1943 pig crop. Production of inedible tallow and greases, soybean oil and linseed oil also reached new peaks.

1945 Outlook Told

For 1945, a drop of about 1.2 billion pounds of fats and oils from domestic materials, to around 10 billion pounds, is being predicted by the Department of Agriculture. One big reason for this is a reduction in the size of the 1944 pig crop—25 to 30 per cent smaller than in the previous year. At the same time, output of the leading soap raw materials: inedible tallow and greases, may decline materially from the 1950 million pounds produced in 1943-44, according to a Department of Agriculture estimate. The overall supply of fats and oils in the United States in the current crop year may be about 700 million pounds less than a year earlier, depending partly on imports. Stocks of fats and oils, which increased roughly 450 million pounds from Oct. 1, 1943, to Oct. 1, 1944, are expected to decline materially during 1944-45.

In addition to domestic demands on a shortened total domestic and import fat and oil supply, world demand for fats and oils in 1945 will continue to be strong. European import demand for oils and fats is increasing rapidly. The pre-war level of net imports into Europe, excluding the United Kingdom and Russia, was about 4.5 billion pounds annually (including whale oil and oil-bearing materials in terms of oil). Of the 4.5 billion pounds, approximately two billion pounds went to France, Belgium, Holland and Italy. These levels of imports will not be reached in 1945, however, it is believed. No major increase in world export supplies can be expected until Far Eastern sources of coconut, palm and soybean are again open to Western nations. The pre-war level of net exports of fats and oils from areas now controlled by Japan, and from the Philippines, was about three and one-third billion pounds annually. Last year, according to an article in the Jan.

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UNITOL SAPONIFIES MORE RAPIDLY THAN OTHER FATS AND OILS USUALLY EMPLOYED IN HARD SOAP FORMULATIONS

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issue of *Domestic Commerce*, published by the Dept. of Commerce, Charles E. Lund, chief of the fats and oils unit of the Bureau of Foreign and Domestic Commerce, states our domestic production in 1944 made up the import deficit. In addition, Mr. Lund pointed out, "(we) produced sufficient quantities (of fats and oils) to allow for actual consumption at a rate only slightly lower than in pre-war years, and an increase of a billion pounds in exports. Total supplies available in the 1944-45 season will more than meet the total requirements, presently estimated at 11,500,000,000 pounds for both domestic and overseas needs," he predicted. In the 1944-45 season, Mr. Lund estimated, the production of fats and oils will be around 10,200,000,000 pounds and with imports of about one billion pounds and the carryover on Oct. 1, 1944, of about 2,300,000,000 pounds, the total supply for the season will reach 13,500,000,000 pounds. He further predicted that the high rate of production of fats and oils from domestic materials will continue not only in 1944-45 but in the 1945-46 season as well.

Increased Soap Fat Demand Seen

An increased demand for soap fats is indicated by recent advances in prices of fish oils, vegetable oil foots, and lower grades of grease, and by recent purchases of lard and rendered pork fat by soap manufacturers, the Department of Agriculture reported recently. Effective Nov. 13, purchase of lard and rendered pork fat for use in soap was again prohibited. Military requirements for soap have been expanded considerably in recent months.

Production of approximately 120,000 pounds annually of crotonic acid at a large scale pilot plant was announced by Shawinigan Chemicals, Ltd., Montreal, who recently developed a process for the production of this material in refined form.

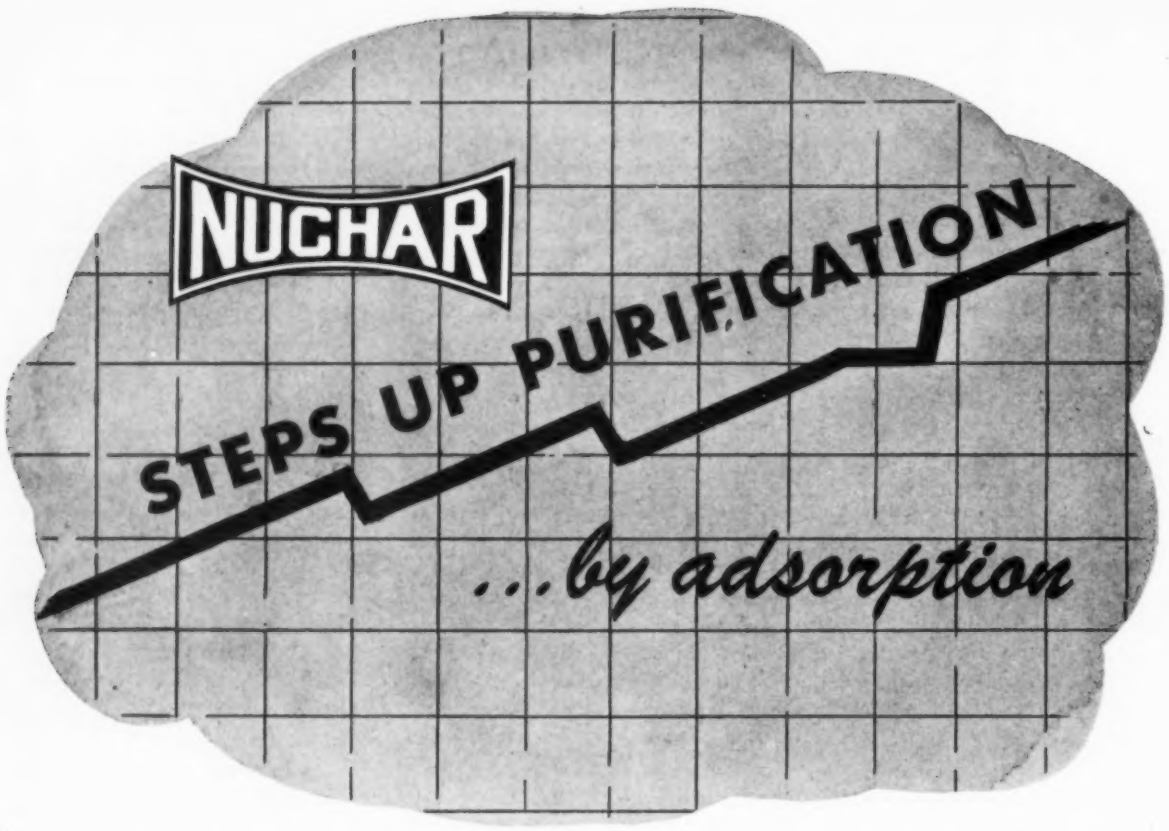
A cut in the allocation of tetra sodium pyrophosphate for the production of soap during the first half of 1945, in view of the shortage of phosphorous, was foretold at a recent meeting of the Sodium Phosphate Industry Advisory Committee, the WPB announced Dec. 18.

Essential Oil Report Due

A story in the *Journal of Commerce*, last month, reports that it is believed conferences to "explore the possibilities of resuming importation of essential oils from France . . . have been held recently by the Foreign Economic Administration and members of the industry, consuming manufacturers and former importers." The story goes on to tell that definite information regarding the possibility of importing French perfuming materials "is anticipated within the near future" and that it will be based on the report of a Government expert who went to France recently to study the whole situation. Inflated prices for French essential oils is one of the difficulties of importing these oils, it is said.

———♦———

C. Robert Fay was appointed comptroller of Pittsburgh Plate Glass Co., Pittsburgh, it was announced Dec. 1. He succeeds Stuart M. Campbell, resigned.



Laboratory technicians contend that a teaspoonful of Active Carbon contains a million square inches of adsorptive surface area to attract molecular substance out of solution—a pound contains 1,900,000 square yards of surface area!

This extreme adsorptive power of Nuchar Active Carbon results from its intricate capillary structure, and industrial chemists are putting this tremendous activated surface to work in Oil and Soap plants everywhere. They are quick to recognize that adsorption makes a thoroughly effective, dependable and faster method of purification.

The use of Nuchar Active Carbon is standard practice in the Oil and Soap Industry and in other chemical processes. Manufacturers producing on a tremendous wartime scale are finding Nuchar indispensable in their distillation, crystallization, sublimation and other purification processes. In some cases Active Carbon has replaced entirely other slower and more costly methods of purification.

Remove unwanted colors and odors from your oils and fats through the use of Nuchar. Write for complete information, stating conditions, to assist us in determining the best grade for your use. A generous laboratory sample will be gladly sent on request.

Nuchar Active Carbons ★ *Abietic Acid* ★ *Snow Top Precipitated Calcium Carbonate* ★ *Liquid Caustic Soda* ★ *Chlorine* *Lignin* ★ *Ligro Crude Tall Oil* ★ *Indusoil Distilled Tall Oil* ★ *Tall Oil Pitch* ★ *Sulphate Wood Turpentine.*

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PRODUCTION SECTION

Soap in Dentifrices

SOAP is more used than wetting agents as a lather-producing and cleansing agent in dentifrices. Soap is economical, effective, readily available, and has been shown to have definite favorable benefits in the mouth. It is said to dissolve mucin plaques and retard bacterial growth. Investigators have published work showing that soap used in the mouth has a selective action on spirochetes, giving a degree of protection against trench mouth. Its surface-active and emulsifying properties increase penetration of the dentifrice into crevices and angles of the oral cavity.

Soap for this purpose should be the purest obtainable. The soap base should be made from high-grade oils and fats. The soap should be completely saponified by the full boiled process. Fresh made lyes should be used.

Powdered Soap

The finished soap for powdering or grinding may have a titre of 35-40° C. so as to possess the proper congealing property particularly desired for tooth pastes and powders. It should contain under 2 per cent of moisture and not more than 0.3 per cent of free alkali calculated as soda ash. No free caustic soda should be present. The USP XI tests for alcohol- and water-insoluble material should apply. The iodine value should not exceed 50 and glycerine is desirably less than 1.5 per cent. The soap should be ground so that 95 per cent passes through a 200-mesh screen. It should not become rancid on storage at 100° F. and a relative humidity of 60 per cent. The color may be white to cream.

Additives

For liquid dentifrices the more soluble castile olive-oil soap is a good selection, or for these a wetting agent is sometimes used. The usual additives in compounding both liquid and paste dentifrices are water, glycerine, alcohol, propylene glycol and glucose. Glucose, as well as invert sugar, have been substituted for glycerine. Propylene glycol is also a glycerine substitute. Manufacturers may be expected to prefer glycerine when available.

Colloids to increase the viscosity of liquids and to thicken pastes comprise such substances as starch, usually as glyceride of starch,—gelatin, methyl cellulose, gums, alumina gel, and colloidal clays. These are used generally as concentrated water dispersions. They are not used in powders. Colloids tend to prevent undue hardening or softening of tooth pastes in tubes.

Starch is used in the form of glyceride of starch, directions for its preparation being given in the U. S. Pharmacopoeia. Gums and gelatin are made by mixing with hot water. Irish moss is extracted with hot water, or used as a powdered material which dissolves directly in water. Colloidal clays are mixed with hot water and decanted to get rid of any gritty material. Silica gel may be added in the mixer before all the powdered ingredients are added. The amounts of these substances vary from a half to 5 per cent, and as high as 40 per cent in the case of starch.

Preservatives most commonly used are benzoic acid and sodium benzoate. Medicaments are sometimes added such as potassium chlorate, camphor, resorcinol, thymol, and peroxides, especially calcium peroxide. When medicinal properties are claimed, the products come under the supervision of the Federal and some State pure food and drug acts. Medicinal appeal has not caught on well with the consumer, which results in their rather limited use. E. G. Thomssen. *Drug & Cosmetic Ind.* 55, 537, 618-20 (1944).

A polished and glossy surface can be given cakes of soap in a convenient manner without adding materially to the manufacturing cost. The method consists of bringing the soap bars into contact with an aqueous liquid for a brief time, and then drying. This may be done as the last stage before wrapping, or bars may be treated after prolonged standing. The cakes may be moved continuously or intermittently on a conveyor belt through a bath, or through impinging streams of the treating liquid, or they may be immersed in it.

The simplest and probably the most economical liquid is hot water. Additions which may be made are water-miscible, organic solvents for soap, such as acetone or an alcohol. A satin-like gloss has been obtained by treatment with water and ethyl alcohol or isopropyl alcohol, in 1:1 proportions. The treatment may produce hydration of the soap surface, the solvent present promoting this hydration.

The temperature to be used depends on the liquid. Water at 150-200°F. is satisfactory. A solution of 25-75 parts of water and 75-25 parts of isopropyl alcohol at 70-125°F. imparts a high gloss; the preferred temperature for a 50-50 mixture is 85°F. When ethyl alcohol is used similarly, the temperature should be 100-150°F. The time needed may be only a minute or less. Excess dissolution of the soap in the treating liquid is to be avoided.

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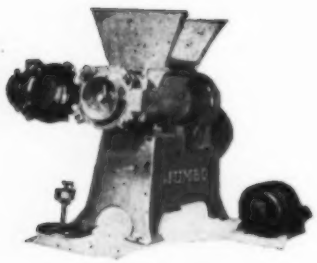
when the war is ended must, in fairness, get them in sequence of the dates on which their orders are placed with us.

By placing your order now, you will not only get earlier delivery, but will also assist us in calculating the materials we will need to fill your order.



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for milling toilet soap ribbons and for producing finished bars.

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Capacity 60/120 frames per day.

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TEXTILE SOAP
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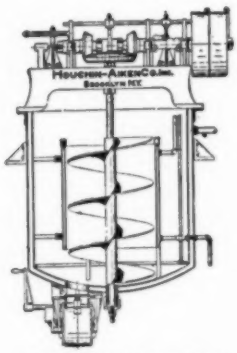
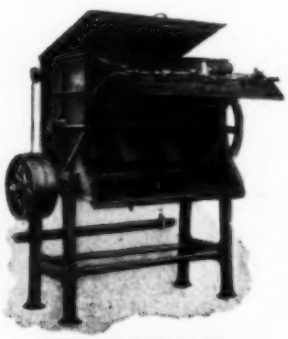


PERFECTION CRUTCHER
for making cold-made half-boiled and floating soaps.

TYPE F ROLLER MILL
Rolls 18" x 40" water cooled. Heavy frames, large bearings. Gears run in oil. Gears and bearings entirely covered.



IDEAL AMALGAMATOR
so designed that soap can be emptied into hopper of mill or plodder.

HOUCHIN
MACHINERY COMPANY, INC.

Manufacturers of Soap Making Equipment

SIXTH AND VAN WINKLE AVES. **HAWTHORNE, N. J.**

The soap is then dried at room temperature in a slightly warm atmosphere and packaged by the usual means, without impairment of its polished or glossy appearance. Lever Brothers & Unilever Ltd. British Patent 2,095 (1944).

Improving Detergency Tests

Much is to be desired in the present method of making detergency tests with standard soiled swatches of cloth in a Launderometer under controlled conditions. In a new method with a washing machine of the ordinary home type, probably the most important factor is the random selection for each test of many pieces of soiled fabric, each made at different times. This method makes it possible to determine differences between detergent efficiency greater than 6 per cent, with better reproducibility than formerly obtained with the Launderometer. It is possible that any type of standard soiled fabric could be used, since the manner of using it rather than the manner of preparing it, largely determines the reproducibility of the method. It seems possible that the method may be adapted to measure relative efficiencies of various types of washing machines, as well as for evaluating detergents. J. A. Woodhead, P. T. Vitale and A. J. Frantz. *Oil & Soap* 21, 333-7 (1944).

Water and Fatty Acid in Soap

Water and fatty acids can be determined rapidly in soaps, and foaming avoided by the use of neutral lead acetate. Water of crystallization is subtracted from the value found.

Water: Ten grams of powdered or flake soap, 4 grams of quartz sand, 10 g. of neutral lead acetate, and 150 ml. of xylene, are placed in a 500-ml. flask and well mixed in the cold. The condenser of the Marcusson apparatus is attached and the mixture heated to 170-80° C. in a paraffin bath with occasional shaking. Subtract 1.4 ml. from the water volume in the buret. The remainder multiplied by 10 is the per cent of water in the soap. The determination takes about 45 minutes.

Fatty Acids: Xylene is removed from the residue by heating in the paraffin bath at reduced pressure. The residue is then heated and shaken at reflux temperature with 100 ml. of 20 per cent hydrochloric acid for about 30 minutes. The fatty acids formed are filtered off on moistened filter paper in a Buchner funnel, washed, dried by suction, and dissolved in ether. The ether solution is washed three times with 10 ml. of water in a separatory funnel, transferred to a weighed flask, the ether removed, and the residue dried at 100-105° C. and weighed. The weight times 10 equals the per cent of fatty acids. A. Picozzi. Ann. chim. applicata 32, 51-3; through Chem. Abs.

Oil Soluble Sulfonates

A by-product now in production at a British oil refinery is a mixture of oil-soluble sulfonates, marketed under the name of "Petromor 276." It can be produced free from inorganic salts and alcohol under controlled conditions, to give a standard material. The "utility" grade being made contains 50 per cent of sodium sulfonates of petroleum fractions, 10 per cent of water, and the rest mineral oil.

The matterial lowers interfacial tension between oil and water, and has foaming and dispersing properties, and can be used in both oil-in-water emulsions and water-in-oil emulsions. The product is finding use in the manufacture of leather oils, as a textile assistant, and in the production of wax polishes, auto polishes, coal-tar disinfectants, and special cleansing agents. *Chem. Trade J. & Chem. Engineering* 115, 459-62 (1944).

Natural Antioxidants

The manometric method was used in a study of the oxygen uptake with soybean oil, cottonseed oil, lard and oleo oil. Removal of the naturally occurring antioxidants in the oils by adsorption on activated alumina reduced the induction period from about 100 hours to 9, 19, 40, and 50, respectively. Addition of 2 and 4 gamma of *alpha*-tocopherol to the alumina-treated oils increased the induction periods to 50 and 100 hours, respectively, with the plant and animal fats. Addition of *beta*-carotene to the alumina-treated fats shortened the induction periods and increased the rate of oxygen uptake. *alpha*-tocopherol counteracted the effect of *beta*-carotene. Ethyl oleate when treated in the manner indicated, behaved like the animal fats, ethyl linoleate behaved like the plant fats. C. R. Thompson and H. Steenbock. *Arch. Biochem.* 4, 15-23 (1944).

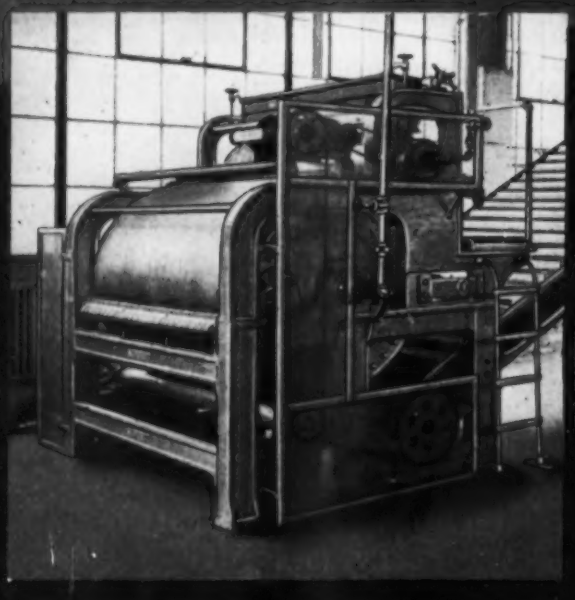
Hydrogenation of Soybean Oil

For the production of a non-reverting edible soybean oil, a process of selective hydrogenation is employed which involves treating the oil in a hydrogenator with a nickel catalyst in a proportion not over 0.02 per cent, agitating the treated oil, creating a vacuum above the level of the oil, applying heat and maintaining the vacuum. When the oil has reached 130° C. a stream of hydrogen is introduced at a pressure of five pounds. The conditions are maintained about three hours, until the iodine value of the oil is not less than 125. M. M. Durkee. U. S. Patent No. 2,353,229.

New Text on Fats and Oils

"Fats and Oils—An Outline of Their Chemistry and Technology." This new book by H. G. Kirschenbauer, research chemist connected with Colgate-Palmolive-Peet Co., fills a long-felt need for a condensed review of the fundamentals of fat and oil chemistry and use. As the author is a soap chemist, it is not at all remarkable that the soap uses of the common fats are particularly well covered, a section of approximately twenty pages being devoted to the fundamentals of soap manufacture and use of various fats and oils in soap making. Other chapters deal with occurrence and composition of the common fats and oils, analytical methods, uses of fats and oils in manufacture of edible products, fatty acid distillation, paints, linoleum, oil cloth, cosmetic, leather industry, tin plating, etc. A special section takes up the various oils such as coconut, corn, fish oil, grease, olive oil, palm, palm kernel, peanut, soybean, tallow, whale oil, etc. While the treatment is necessarily brief in such a short text, the book will very definitely fill a useful purpose in many libraries. 154 pages. $2.75.

Sargent's latest . . .
SOAP CHIP DRYER



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PRODUCTION Clinic

By DR. E. G. THOMSSEN, PH.D.

AT THE beginning of a new year, it is human nature to consider the future more intensively. The urge in this respect takes on various aspects. Some people make resolutions, while others plan a year ahead. This planning ahead is carried quite generally into business practice. In formulating future business projects, sales usually are uppermost in mind and rightfully so. During the war years, it has not been possible to plan ahead in business as thoroughly as in former times, because of a great many unsettled conditions. Not only has everything been upset, but there is the constant uncertainty as to the length of the war. Then too, business men are tired, bewildered and in many cases have frayed nerves. In the new year that is ahead of us we have every reason to believe that the victorious end of this war is very much closer than in previous years.

During the war years, production has been in the spotlight as never before. Production men have shown their mettle, so much so, that sales people have played secondary roles. Through scarcity of supplies there was no ingenuity or particular effort required to meet sales demands. It now becomes the duty of production men who have become so important to industry, not to permit themselves to be relegated to their pre-war position. Sales are very important to any business, but production is also important. Scientific men, mechanical men and production men in past years have not

emphasized their importance to business in the same manner as have salesmen. They should tear a page from the salesmen's book to learn to continue to sell their importance to industry and not hide their talents and indispensability under a bushel, now that they have gained their present advantage.

Just as sales departments lay out a plan, so should men on the production end of business prepare for the future good of business. The beginning of the year is an excellent time to do this. There are numerous ways in which production can be improved constantly. Plant reconversion of which we hear so much at this time, is largely a production man's problem. Competition in business after the war will be keener, so improved and more economical production methods should now be contemplated. There is always a better way of performing an old operation. Those who find this better way will be on top of the heap. Wise production men will realize this and get their plans ready now. It always irritated me when I ran plants to have some outside efficiency organization sell the management on a new improved scheme, usually a simple one, and bring into the plants their own men who knew less about the operations than those in actual charge. They often made it difficult by asking hundreds of questions regarding everyday operations. The information thus obtained was compiled and presented in attractive form to the executive offices with but few recommendations for improvements. Wise production men will see to it that information of this kind which is frequently lying around the plant loose, but is not in motion, is brought to the attention of their superiors by themselves. It is their own fault if they permit someone else to carry the story.

In searching around for improved manufacturing methods, machinery salesmen should not be discounted. These men in many cases have come up from the ranks and often possess unusual engineering ability and information which is of great value in future planning. They get around to many plants and pick up creative ideas that are new to the inside man who is so often tied to one plant. It is always good practice when new installments are looked forward to, to consult several makers of the same type of equipment. This usually results in all round information. Equipment salesmen are generally keen, constructive and unselfish. It is a serious mistake to overlook their help in planning ahead for production.

Dispersing, Emulsifying Mixer

The Abbé Engineering Company, New York City 7, well known manufacturers of mills, mixers and sifters has sent us their Bulletin No. 62 dealing with the new Abbé Lenart Mixer. They employ a novel dispersion principle which utilizes the centrifugal force generated by a rapidly rotating, mixing disc equipped with

Maybe it's natural to rest a bit on today's sales laurels. Pleasant dreams!

But when the awakening comes, competition may be pounding around the sales curve way out in front. That is, unless you're planning a product surprise or two today — for tomorrow.

If you haven't studied the potent possibilities of product improvement available through the use of Nimco Brand Lanolin, Degras and other grades of wool fat, this is the time to begin your experiments.

The facilities and the know-how that have made Malmstrom America's Largest Supplier of Lanolin and Degras are available to you, together with samples, should you prefer to conduct your own tests.

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2. GREATER *UNIFORMITY*
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DEGRAS • Neutral and Common • **WOOL GREASES**

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curved radio ribs. This disc forces the material to be processed through narrow apertures and rapidly disintegrates and disperses it to a fine, uniform condition. The repeated flow of the product, through this action, by a clever arrangement of a stationary inner cylinder, results in rapid intensive mixing, more thorough dispersion and a more uniform product. This mixer affords time saving, low power consumption and easier cleaning. It may be had in many types of metals. The machine is suitable for handling such items as pastes, liquid soaps, metal polishes, shaving creams, for fat blending and for making emulsions. Free laboratory service, without any obligation, is maintained for prospective users.

Soap Machinery Catalog

In glancing through the soap machinery catalog of Houchin Machinery Co., Hawthorne, N. J., we note that they rather modestly state that they have had over forty years' experience in making soap machinery. We have known them rather intimately for more than thirty years and always found them to be most reliable. This is the common experience of practically everybody in the soap business, for it is quite certain that wherever soap is made in the United States and many other parts of the world, Houchin soap machinery helps to make it. They not only furnish most types of machinery used by soapers, but through their long contacts and experience are able to furnish blue prints for plant layouts, complete instructions on how to operate the machines and even formulae for making various kinds of soap. It is almost superfluous to state that the Houchin Machinery Company make a full line of machinery and equipment to produce laundry soap, soap flakes and chips, soft or paste soaps, liquid soaps and soap powders. Their catalogs are available upon request.

Midget Pumps

Eastern Engineering Co. of New Haven, Conn., have sent us their various catalogs describing the equipment they manufacture. This consists of both portable and fixed mixing equipment for liquids, coolant pumps, small industrial pumps and midget pumps. They are all made in a large variety of styles and sizes to fit practically every requirement. We single out for special comment however, their line of midget pumps. This company rightfully prides itself as being a pioneer in the development of small pumps for experimental and industrial applications. The catalog rather strikingly illustrates these small pumps. They are pictured being held in one hand in various positions. This quickly conveys an idea of how small they really are. About a dozen different models and types of midget pumps are offered and they are made not only from iron, but from various alloys.

A midget pump is a very handy piece of equipment to have around a plant, a pilot plant or a laboratory. Not only one, but several of them may be advantageously held in readiness for numerous jobs. Since the Eastern midget pumps are available in a wide selection, any problem where a small pump is required may be overcome. It is furthermore of interest to note that they make these pumps in the various models and so they may be driven by direct connected motors, by pulley and by compressed air. Both rotary and centrifugal pumps are made in the midget sizes. Their literature gives many details and is well worth having.

Photoelectric pH Colorimeter

Photovolt Corp., New York 16, have prepared a piece of technical literature which describes the use of their Lumentron Colorimeter Model 400 for pH determinations. At this time when electrometric pH meters are restricted to war uses, many technical men will welcome the news that this Colorimeter is freely available. This is especially so when it is asserted that this piece of laboratory equipment gives a sensitivity equal to and at times higher than that obtained by the electronic type. The readings are direct, accurate and the Colorimeter by the use of nine indicator solutions, covers the complete pH range from 0 to 14. It operates with ordinary full length Pyrex test tubes. The instrument is equipped with six color filters through the use of which not only can pH readings be made, but it can also be used for colorimetric and turbidimetric tests in making chemical analyses.

Hand Sprayers

The R. E. Chapin Manufacturing Works of Batavia, N. Y., have built hand sprayers for over fifty years. Their sprayers are well known to the industries we serve. They recently sent us their latest leaflet describing single action type hand sprayers. Full specifications as to capacity, the pump, the tank, packing and weight of packages are given for the five types of hand sprayers that are featured. These include sprayers from 5 ounces to 25 ounces capacity.

New Triangle Powder Packer

A new, improved auger packer for filling and packing powdered materials has been developed by the Triangle Package Machinery Co., Chicago. It is used for filling all kinds of powders in quantities from several ounces up to five pounds, and works with cans, bags, cartons or jars. Production on one pound packages is 30 or more packages per minute, depending on product, degree of packing and type of container used. By utilizing automatic feeding of the material instead of by foot level control, it is claimed, production is increased from 10 per cent to 25 per cent over previous models. Eliminating the foot lever also reduces operator fatigue. Automatic operation is accomplished by a solenoid switch which releases the feed clutch when the container is raised to filling position.

Another new feature of this auger packer is an electrically controlled emergency stop switch that enables the operator to instantly cut off the feed of material from the auger. The packing bowl can be removed instantly by loosening three nuts, a feature that saves time when the packer has to be cleaned for a change of materials. The complete, streamlined unit is totally enclosed.

Wife of Swift V-P Dies

Mrs. Neva Mitchell Jones, wife of O. E. Jones, vice president and director of Swift & Co., Chicago, in charge of soap and kindred products, died Dec. 2 at Presbyterian Hospital in Chicago.

Deodorizing the Air

Materials used for deodorizing the air are of several types, based on quite different principles. Some involve converting an odor of unpleasant character to a pleasant or neutral one by *oxidizing* the chemical substance responsible for the bad odor to an inodorous chemical. Typical of these are potassium permanganate, hypochlorous acid, and ozone. These might be expected to oxidize an offensive-smelling mercaptan, for example, to an inert, inodorous disulfide or sulfate.

Alkaline substances such as borax, ammonium carbonate, lime, and trisodium phosphate are frequently suggested as components of solid mixtures, possibly with the thought in mind that the unpleasant odor to be overcome is a volatile acid. Alkalies should be helpful in dealing with butyric acid from Limburger cheese, or with caproic acid. Gases and vapors responsible for unpleasant odors can frequently be *adsorbed* at the surface of porous materials such as activated carbon, activated alumina and silica gel. Such materials are sometimes used to adsorb odorous gases in refrigerators and in air conditioning systems. Activated clays and kieselguhr are occasionally used for this.

Another method is based on the fact that the unpleasant odor is caused by microorganisms such as bacteria, or molds. Phenol, metallic salts, and formaldehyde are typical of *antiseptics* used for this purpose. They deodorize by destroying the organisms responsible for the odor.

Narcosis of the olfactory nerves is perhaps entitled to be considered as an additional method of deodorization. The nose is temporarily taken out of action by lower aldehydes such as formaldehyde, acetaldehyde and some others. *Reodorization* takes the form of overpowering an existing unpleasant odor with a stronger, pleasant odor, as in a theater spray. This often contains some formaldehyde, as well as a considerable number of essential oils and odoriferous chemicals to serve as camouflage.

In one of the most widely advertised and actively sold deodorants, chlorophyll is claimed to be the active revivifier, while formaldehyde is used as the actual deodorizer. The scientific basis of the deodorant action of chlorophyll is a mystery to most chemists. After the war it is possible that deodorants may be dissolved in "Freon" and sprayed by merely turning a nozzle of an aerosol bomb. The Givaudanian, November, 1944.

New Way of Sulfating Oils

Alcoholysis treatment may be adapted to the manufacture of sulfonated or sulfated oils. The oils are esterified with a lower alcohol or methylated as in British Patent No. 563,481. The mixture of esters obtained is repeatedly washed with water, made alkaline or acid if desired, to remove the remaining glycerine and alcohol, and if necessary purified or fractionated by distillation in vacuo. The esters are then sulfated by treatment with sulfuric acid, chlorosulfonic acid, or sulfuric acid and acetic anhydride.

The advantage of this method is that by using particular alcohols to replace the glycerine, different sulfonates can be obtained which may have more desirable properties than those obtained by the sulfation of the glycerides.

In an example, to 100 parts of the esters from castor oil, 25 parts of 80 per cent sulfuric acid are added slowly with stirring, at not over 35° C. When a portion of the product is soluble in water, 100 parts of 10 per cent sodium sulfate solution are stirred with the product for a few hours. The bottom layer is then drawn off. The oil is made neutral to methyl orange with caustic soda solution (sp. gr. 1.12). V. Wolf, Ltd., R. Rosenbusch and A. Wolf, British Patent No. 563,482; through *Chem. Trade J. & Chem. Engineer* 115, 308 (1944).

Tocopherol and Color Change

The red color which develops on accelerated oxidation of fat substrates containing *gamma*-tocopherol, results from its conversion to chroman-5, 6-quinone. The latter compound possesses relatively little antioxidant activity. C. E. Swift, G. E. Mann and G. S. Fisher. *Oil & Soap* 21, 317-20 (1944).

Anhydrous Fat Splitting

Alcoholysis of oils or esterification with a monohydric alcohol can be carried out at room temperature in the presence of hydrogen chloride, with as little alcohol as 1.5-3.5 times the quantity required by theory. When methanol or ethyl alcohol is used, the main part of the glycerine separates in a lower layer. The amount of hydrogen chloride used is preferably 1-3 per cent of the mixture, which is introduced into the alcohol as hydrogen chloride gas, or into the mixture of oil and alcohol, preferably under anhydrous conditions.

As an example, 12 parts of hydrogen chloride gas are introduced into a mixture of 500 parts of castor oil and 125 parts of methanol. Turbidity is soon observed and after 3-4 hours a glycerine layer has settled. This is removed and the oily layer washed several times with a little water which takes off the remaining glycerine, methanol and acid. When heated, the water content of the oily layer settles out and can be drawn off. The oil is then distilled under a vacuum of 3 mm. The distillate (430 parts boiling up to 225° C.) consists of the methyl esters of the castor oil fatty acids; any residue may be used for the next alcoholysis. The glycerine layer, by itself or together with the wash water is separated from floating oil, neutralized with a solution of caustic soda, and the methanol distilled off. The glycerine is finally recovered from the salt solution by concentration and distillation. V. Wolf Ltd., and R. Rosenbusch. British Patent No. 563,481; through *Chem. Trade J. & Chem. Engineer* 115, 308 (1944).

Solvent Extraction of Oils

Furfural is used as a selective solvent, suitably counter current and under a blanket of an inert gas such as free nitrogen, for separation into two liquid phases. One phase contains the furane compound saturated with the more soluble unsaturated oil constituents, and the other contains the less soluble more saturated constituents saturated with the furane compound. J. D. Jenkins, to Pittsburgh Plate Glass Co. U. S. Patent No. 2,352,546.

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U.S.I. CHEMICAL NEWS

January ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1945

Two New Resins Round Out U.S.I. Replacement Line

Complement Existing Resins in Solving the Shortage of Alkyds

While no relief is yet in sight for the currently tight situation on both natural and synthetic resins, there are some bright spots for manufacturers of civilian coatings. Not the least of these is U.S.I.'s non-critical S&W Aroplaz 1306, introduced some months ago and now complemented by S&W Aroplaz 1305 and 1309. These newer resins are designed specifically for those who want the harder, less flexible films produced by resins of lower oil content and who prefer not to blend with cold-cut solutions.

Gloss and Color Retention

S&W Aroplaz 1306 and the newer companion resins can now be used as alkyd resin replacements with a minimum sacrifice in most characteristics. Initial color is very pale and color retention is good. Gloss and gloss retention are outstanding. Drying, although not equivalent to an alkyd, is satisfactory for most jobs.

Versatility of Aroplaz 1306

Since all three of the new resins are soluble in all petroleum and coal-tar hydrocarbons,

(*Continued on next page*)

Wide Range of Products Made from Sub-standard Oranges

The production of new products from oranges, below fresh-fruit standards, has grown to the point where one orange products plant in California has had to expand its facilties to care for double the tonnage of oranges. Among the plant's products are oil-well drilling compounds, synthetic rubber anti-stick agents, and vitamin concentrates, most of which are produced from residues formerly discarded as waste.

Part of the pulp is processed to extract the pectin. In this process, pulp is treated with hydrochloric acid, and pressed. The liquid obtained is passed through a filter press, and the filtrate concentrated and treated with ethanol to yield a jelly-like precipitate. After separation of the alcohol in a drain tank, the mass of precipitate is broken up. The pieces of pectin are hardened, ground, dried, and bagged for shipment. Pulp residue is sold for feed.

Production of old-line by-products of oranges is not decreased by this further processing.

Three pounds of washed precipitated pectin (left) are required to yield a few ounces of dry, powdered pectin (right). Photo from The Exchange Orange Products Co., Ontario, Cal.

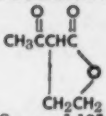
Interesting Future Predicted for Four New Organic Chemicals

Novel U.S.I. Intermediates Promise Valuable Short Cuts in the Synthesis of Drugs, Medicinals and Specialties

Taking their places well up on the list of war-born organic intermediates which are both paving the way to new products, and shortening the synthetic route to old ones, are the four new chemicals whose structural formulas are shown below. These new intermediates are methyl cyclopropyl ketone, alpha acetyl butyro lactone, acetyl propyl chloride, and 5-diethylamino pentanone-2. Products of U.S.I. pioneering in the application of the Claisen-type condensation, two of these new intermediates are already being used in substantial quantities. The synthesis of vitamin B_1 makes use of alpha acetyl butyro lactone, while 5-diethylamino pentanone-2 is an intermediate in the manufacture of atebrin.

Below are the physical constants of each of these new chemicals. Samples are available on request.

α-ACETYL BUTYRO LACTONE



Mol. wt., 128. Sp. gr., 1.185-1.189 @ 20/20° C. Refractive Index, 1.460 @ 20° C. Boiling point, 121-122° C. @ 10 mm. Hg. abs. Colorless liquid. Suggested Uses: Organic synthesis.

ACETYL PROPYL CHLORIDE (5-Chloro Pentanone-2)

(*Continued on next page*)

U.S.I. plant where acetyl propyl chloride is manufactured from α-acetyl butyro lactone. The acetyl propyl chloride is then reacted, via a Claisen condensation, with diethyl amine to give 5-diethylamino pentanone-2. The refining still and column can be seen in the foreground.

A. E. Tongue to Direct U.S.I. Anti-Freeze Sales

Arthur E. Tongue

Arthur E. Tongue has been appointed Manager of Anti-Freeze Sales for U. S. Industrial Chemicals, Inc. He will be in charge of the sale of U.S.I.'s Super-Pyro Anti-Freeze, as well as its other automotive products.

Mr. Tongue comes to U.S.I. from the Chrysler Corporation, where, for the past eight years, he was in charge of Advertising and Sales Promotion for the Chrysler line of cars.

Butanol Reported To Boost Penicillin Yield

While penicillin can be extracted by ether, amyl acetate or chloroform, provided the aqueous solutions are sufficiently acid, penicillin is rapidly destroyed in a highly acid environment. Needed, then, is an extraction solvent which will function in less highly acidified solutions.

Research, recently reported by an English scientist, has shown that penicillin is most stable at a pH of 6.4; it has been discovered that normal butyl alcohol will efficiently extract the penicillin from such a medium.

Although these findings are based upon small-scale tests, the improvement in efficiency of the new method is described as "enormous."

Surface Hydrolysis Makes Plastics Solvent Resistant

Cellulose ester plastics exhibit a tendency to swell, distort, and become tacky, when brought into contact with certain solvent plasticizers, and solvents such as acetone.

It has been discovered that after surface hydrolysis of the plastic, the surface thus converted back toward cellulose is highly resistant to the action of such solvents. Surface hydrolysis is obtained by dipping the plastic in a solution of sodium hydroxide and a softening agent, such as alcohol.

Plastics so treated will withstand cleansing operations impracticable for untreated plastics and the physical qualities of the plastic, are apparently unaffected by the treatment.

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January ★ **U.S.I. CHEMICAL NEWS** ★ 1945

Improvements Made in U.S.I.'s Curbay B-G

With its riboflavin potency improved to 150 micrograms per gram, new, improved Curbay B-G assumes an even more important place among poultry and livestock feed supplements.

In addition to its increased riboflavin content, Curbay B-G contains generous amounts of other B-complex factors: pantothenic acid, niacin, pyridoxine, biotin, as well as folic acid. Curbay B-G is a very economical source of these factors.

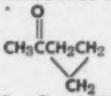
A new manufacturing process has also greatly reduced the product's tendency to dust.

New Organic Chemicals

(Continued from preceding page)

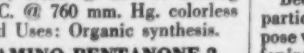
Mol. wt., 120.5 Sp. gr. 1.054 @ 20/20° C. Refractive Index, 1.440 @ 20° C. Boiling point, 71-72° C. @ 20 mm. Hg. abs. Colorless liquid. Turns dark on storage in presence of air. Suggested Uses: Organic synthesis.

METHYL CYCLOPROPYL KETONE



Mol. wt., 84. Sp. Gr., 0.903 @ 20/20° C. Refractive Index, 1.426 @ 20° C. Boiling point, 111-113° C. @ 760 mm. Hg. colorless liquid. Suggested Uses: Organic synthesis.

5-DIETHYLAMINO PENTANONE-2
(Noval Ketone)



Mol. Wt., 157. Sp. Gr., 0.865 @ 20/20° C. Refractive Index 1.435 @ 20° C. Boiling Pt., 90-92° C. @ 20 mm. Hg. abs. Colorless liquid. Turns dark on storage in contact with air. Suggested Uses: Organic chemical synthesis.

Claims Color-Fast Sizing For Paper and Textiles

In the past, resin emulsions used for sizing paper, fabrics, leather and other flexible materials have been subject to two serious defects, according to a recently granted patent. Such emulsions are claimed to yellow with age, and under certain conditions to become relatively inflexible.

According to the inventors, emulsions of hydrogenated ester gums are free from both of these adverse factors, being compatible with most plasticizers and overcoming the tendency to yellow with age.

The hydrogenated ester gums used in these emulsions are prepared by hydrogenating rosin and then reacting it with ethanol, diethylene glycol or other aliphatic alcohol. Another method of preparation first reacts the rosin with the alcohol to form ordinary ester gum, then hydrogenates the ester gum.

Two New Resins

(Continued from preceding page)

finishes prepared with them are easily adjusted for brush, spray, dip or other application method. Set time of films may be controlled by the selection of solvents from among a wide range. Acid value has been lowered so that these resins may be used with any pigment except a highly reactive one.

Because of their oil content, these resins are particularly suitable for use as general-purpose vehicles in architectural finishes, enamels for interior use, and exterior applications where maximum durability is not a factor, and in metal-finishing enamels. However, they may be modified to yield other characteristics. Enamels of high durability for exterior finishing may be produced by the addition of bodied oils, while addition of Ester Gum or other hard resins, cold-cut, produces extremely hard films for use as furniture or floor varnishes and toy and hardware enamels.

RESIN SPECIFICATIONS

AROPLAZ	1306 65% SOLIDS in MS	1306 75% SOLIDS in MS	1309 75% SOLIDS in MS	1305 85% SOLIDS in MS
Acid Value (Plastic)	10-15	10-15	10-15	10-20
Color (GH 1933)	7-9	7-9	8-10	8-10
Viscosity (GH)	T-V	Y-Z_1	W-Y	Z_1-Z_2
Weight/Gal. @ 25C	7.6 lbs.	7.8 lbs.	8.0 lbs.	8.2 lbs.
Reportable Oil Content (Prox.) on plastic resin	65%	65%	60%	44%

TECHNICAL DEVELOPMENTS

Further information on these items may be obtained by writing to U.S.I.

A new synthetic detergent of the substituted sodium alkyl sulfonate type has been announced. The product contains 35% organic material and will be of interest to those requiring high water solubility with good detergent, emulsifying and wetting properties. **(No. 888)**

U S I

Simulated hammered finishes, claimed to produce hammered silver, copper and bronze effects on most metals or phenol-formaldehyde molded plastics, are back on the market for industrial application. **(No. 889)**

U S I

Bonding plastics to a wide range of materials is the announced purpose of a new adhesive line. Among the materials mentioned are glass, metals, rubber, fabrics, wire, lead and tin foil, and cellulose. **(No. 890)**

U S I

To fill drums in a horizontal position is the purpose of a new funnel offered to save time and labor in this otherwise troublesome job. The new filler clamps to the drum chine; can't tip or spill. **(No. 891)**

U S I

Metallic, high-temperature packing designed for aircraft, is now available for general industrial use. According to the manufacturer, this woven metal tape will give service at 2,000 deg. F., is corrosion-resistant and non-magnetic. **(No. 892)**

U S I

An edible emulsifying agent, claimed to be non-toxic, practically odorless, dispersible in hot water, and completely soluble in alcohols and hydrocarbons, is announced. Product is thought to be of special interest to the food, pharmaceuticals, and cosmetic industries. **(No. 893)**

U S I

To color metals and alloys of almost any type, with almost any color, and in iridescent and matte effects, a new line of coloring salts and solutions is offered. Among the features claimed are increased corrosion resistance. **(No. 894)**

U S I

Protection against skin irritation is promised by the manufacturer of another new cream, who describes it as providing the skin with a water-removable armor against industrial irritants. **(No. 895)**

U S I

Marking ink in powder form, packed in containers which hold enough to make one quart, is claimed to wash out of fabrics on which it may be spilled. In blue, purple, green and red. **(No. 896)**

U S I

Instant anti-skid protection is described as one of the qualities of a pair of new dry-cleaners for floors. Both are said to reduce accidents and fire-hazard. **(No. 897)**

U S I

To protect uncured rubber and oils from the deleterious action of sunlight, a new alkylated polyhydroxy phenol is on the market. **(No. 898)**

U S I

Tough paperboard drums, claimed to have held up under drop tests more severe than ICC tests, are offered for packing liquids. **(No. 899)**

U.S.I INDUSTRIAL CHEMICALS, INC.

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OTHER PRODUCTS

PRODUCTS AND PROCESSES

Filter Powder for Solvent

Synthetic hydrated magnesium silicate is treated with an aqueous solution of an alkali metal silicate to cause fixation of the latter on the material. One per cent or more is a suitable amount. The resulting product is dried for production of a pulverulent product, suitable for use as a decolorizing and filtering agent in the treatment of used drycleaners' solvent or other liquids. M. Y. Seaton, to Lyle Caldwell. U. S. Patent No. 2,353,970.

Soapless Shampoo

A sulfated monoethanolamide is prepared of acids such as caproic 5-10 per cent, caprylic acid 25-55, and capric acid 35-65 per cent. This is suitable for use as a shampoo together with a white mineral oil having a specific gravity at 15° C. of 0.83-0.89. E. A. Robinson and G. D. Davis, to National Oil Products Co. U. S. Patent No. 2,353,081.

Germicidal Soap

One to three per cent of 2,2'-dihydroxy - 3, 5, 3', 5' - tetrachloro biphenyl is used in soaps to make them germicidal. The same concentration of the hexachloro diphenyl sulfite may also be used. W. S. Gump, to Burton T. Bush, Inc. U. S. Patent No. 2,353,724 and 2,353,735.

Softener from Coffee Grounds

Finely ground coffee, such as coffee grounds resulting from coffee preparation, is treated with an aqueous alkaline solution in the presence of metallic aluminum. The alkali is of sufficient strength to react with and render soluble metallic aluminum, and may be caustic soda, soda ash or trisodium phosphate. The product from which excess solution is drained off, has excellent water-softening properties, and after repeated use may be revivified by a 2 per cent solution of sodium chloride. In place of the above treatment, coffee grounds may be impregnated with a solution of an alkali metal silicate, for example, a 10-20 per cent sodium silicate solution, for about five hours, and then with caustic soda or soda ash. This product also has good water-softening qualities and may be used in laundries, boilers, etc.

Beta Soap Phase

In order to make soap flakes and granules very readily soluble, the beta phase is produced during manufacture of soap. This depends on agitation of the soap at a certain critical temperature, followed by rapidly cooling. This temperature depends on the composition of the soap. For example, for sodium soaps prepared by reducing the moisture content of kettle soap to 26 per cent, the critical temperature is found to be about 160°F. when the real soap present is composed of 20 per cent coconut oil and 80 per cent tallow soap. The temperature is about 150°F. when the real soap formula is composed of 50 per cent coconut oil and 50 per cent tallow soap. The Procter & Gamble Co. British Patent No. 562,855 (1944).

Acid Shaving Agents

Contrary to views previously held, it is possible to obtain good softening of the beard by using fatty acids in combination with a foaming agent. Other organic and inorganic acids, as well as sulfonates, can also be used. J. Hojka. Casopis Mydlar Vonavkar 21, 36; through Chem. Abs.

Household Hand Creams

One of the largest selling items in the cosmetic market is the hand-protective cream or lotion for use on the hands of the women doing ordinary housework. These products generally incorporate an oil repellent and a water repellent—glycerine on the one hand and beeswax, spermaceti or petrolatum on the other. They will protect the hands against a small amount of dishwashing but are not expected to be suitable for the more severe conditions of industrial use.

These products usually consist of soap as an emulsifying agent, beeswax or spermaceti or both, glycerine, and alcohol in an aqueous vehicle. A gum is also added as a thickener and stabilizer of the emulsion. Soaps used cover the range from castile to ammonia and triethanolamine soaps. A mixture of these is sometimes used. Some lotions incorporate a small amount of lanolin for its emollient and skin softening effect.

The properties sought for are that the products be easily applicable and that they produce a film which does not feel greasy. None of the well known commercial brands will produce an oil stain on paper after application to the hands. Most women will testify to their efficacy and value in protecting the hands. *Drug & Cosmetic Ind.* 55, 416-17, 488 (1944).

Pure Stearic Acid

Pure stearic acid for use in the study of single pure soaps may be prepared with a yield of 200 grams from 500 grams of technical stearic acid. The method depends on the lead salt separation of the saturated from unsaturated acids, conversion to the methyl esters, fractional distillation of the esters in vacuo, hydrolysis of the methyl stearate to stearic acid, and finally recrystallization from acetone. J. M. Philipson, M. J. Heldman, L. L. Lyon and R. D. Vold. *Oil & Soap* 21, 315-17 (1944).

Special Skin Protectives

Three new types of protective skin lotions and creams are made by the Mine Safety Appliances Co., Pittsburgh 8. Fend-U is a lotion designed to protect a worker's skin against all types of cutting oils and cooling compounds, kerosene, carbon tetrachloride, benzol, ether solvents, etc.; Fend-F, likewise a lotion, is said to help guard against dermatitis from aluminum, magnesium, and zinc dusts, and to form an effective barrier against Fiberglas, sharp particles, fruit and vegetable fuzz, chlorinated solvents; Fend-PC is a cream for minimizing nervous perspiration where this is the cause of skin irritation, thus helping to prevent rusting of polished metal surfaces through contact with skin moisture.

Soap Fat Use Rises

A rise of some 24,953,000 pounds of fats and oils consumed by the soap industry in the third quarter of 1944, as compared with the previous quarter, was reported in the preliminary report of the Bureau of Census, Department of Commerce, Washington, D. C., Dec. 12. In the third quarter of 1944, some 495,690,000 pounds of fats and oils were consumed by the soap industry; 470,737,000 pounds were consumed in 1944's second quarter. There were 507,705,000 pounds consumed by the industry in the first three months of 1944.

Inedible tallow is still the leading soap fat, registering a slight increase above the second quarter consumption of this material. 248,501,000 pounds were used in the third quarter, as against 235,744,000 in the second 1944 quarter. A jump in the use of grease in the most recent quarter was also recorded, as compared with the previous quarter, as was true in the case of lard and crude coconut oil. Refined coconut use declined in the third quarter, as against its use in the second three months of the year. There were 138,127,000 pounds of grease, 45,827,000 pounds of lard and 19,430,000 pounds of crude coconut oil consumed by soapers in the third quarter. Figures on consumption of fats and oils, by soap makers for the third 1944 quarter are given in the following table in thousands of pounds:

VEGETABLE OILS	
Cottonseed, crude	53
Cottonseed, refined	122
Peanut, crude or virgin	71
Peanut, refined	24
Coconut, crude	19,430
Coconut, refined	10,574
Corn, crude	97
Corn, refined	8
Soybean, crude	370
Soybean, refined	234
Olive, edible	23
Olive, inedible	46
Olive, sulphur oil or olive foots	551
Palm kernel, crude	—
Palm kernel, refined	—
Palm, crude	3,934
Palm, refined	86
Babassu, crude	662
Babassu, refined	848
Linseed	228
Castor No. 1, crude	2,698
Castor No. 3, crude	2,341
Castor, dehydrated	—
Castor, sulphonated	85
Other vegetable	162
ANIMAL FATS	
Lard, rendered (including lard and rendered port fat)	45,827
Sterine, animal, edible	2
Oleo oil	599
Tallow, edible	15,086
Tallow, inedible	248,501
Neat's-foot oil	—
FISH AND MARINE MAMMAL OILS	
Marine mammal oils	6
Fish oil	4,811
GREASES	
Greases, other than wool	138,127
Wool grease	74

Fritzsche Bros. New Executives

Fritzsche Bros., New York essential oils, have just released the following statement concerning changes in executive personnel:

"Following the death in October of George L. Ringel, a director and vice-president of Fritzsche Brothers, Inc., realignment of the executive personnel of that company has been made. John H. Montgomery, secretary and a director, has been elected second vice president, retaining also his former office. Hans P. Wesemann, third vice-president, has been made a director and Joseph A. Huisking, fifth vice-president, has been elected treasurer and managing director of the company's affiliate, Fritzsche Brothers of Canada, Ltd., with offices and plant in Toronto. A new position has been created, that of chief chemist, and Dr. Ernest Guenther, fourth vice president, has been appointed to that post.

"The present officers of Fritzsche Brothers, Inc., are as follows: F. H. Leonhardt, president; Wm. A. R. Welcke, first vice-president and treasurer; John H. Montgomery, second vice-president and secretary; Hans P. Wesemann, third vice-president; Dr. Ernest Guenther, fourth vice-president; Joseph A. Huisking, fifth vice-president; R. R. Redanz, assistant treasurer.

The first four named officers, with Dr. A. Nicolaus, managing director of the Clifton, N. J., factory, constitute the board of directors."

New Ross Carton Set-up Machine

At a preview held in the Hotel Commodore, New York, Dec. 18, A. H. Ross & Co., Ludlow, Ky., introduced its new Ross carton set-up machine. The new Ross unit is semi-automatic, silent, and with a capacity range from 40 to 120 cartons per minute. The machine forms and tucks one end, discharging on a conveyor with the open side up so that operators can insert the load quickly, in pace with the machine.

Another feature is a device which automatically shows a red light when the supply of cartons needs replenishment. If the signal is neglected and cartons are not reloaded, the machine automatically stops.

Other features include: hardened steel, chromium plated and highly polished, for all parts coming in contact with cartons; shafts and moving parts are all equipped with grease-sealed ball bearings; all gears and friction parts turn in oil; operating speed is controlled by a master speed range drive, operated by a slight turn of the wheel; wherever possible, bearings, gears, chain, etc., are standard units obtainable anywhere to facilitate obtaining replacements locally; and finally, as a contributing factor to the previous point, all units of the machine are standardized to close tolerances, so that repairs, wherever secured, will fit without adjustment.

A new, fully automatic unit which, it is claimed, will have a speed of between 150 and 200 cartons per minute is in preparation.

NEW PATENTS

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine & Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,360,006, Insecticidal Preparation, patented October 10, 1944 by Albert C. Mohr, Berkeley, Calif., assignor to Stauffer Chemical Co., San Francisco. A composition of the class described comprising a free flowing finely divided dry intimate and homogeneous mixture of

	Per cent
Tartar emetic	1 to 10
Sugar	1 to 10
Sulphur	98 to 80

No. 2,360,135, Detergent Composition and Method, patented October 10, 1944 by Harry H. Hull, Chicago Heights, and Lewis Shere, Glencoe, Ill., assignors to The Diversey Corp. An anti-foaming and anti-gelling detergent solution for use in automatic washing equipment for bottles, pans and the like, comprising water, from 0.25 per cent to 10 per cent by weight of the solution of caustic soda, and from 0.05 per cent to approximately 1 per cent by weight of a water soluble sodium salt of an octyl ester of a phosphoric acid as a foaming and gelling inhibitor.

No. 2,362,284, Metal Cleaning Compositions, patented November 7, 1944, by Louis McDonald, New York. A metal cleaning composition for the removal of metallic oxide, tarnish, or scale, comprising by weight:

	Parts
Bentonite	10 to 30
Glucono delta-lactone	10 to 20
Wetting agent	about 2

admixed with tripoli and infusorial earth, each of the latter in substantial proportions to make up a total of 100 parts.

No. 2,362,401, Detergent Compositions, patented November 7, 1944, by Joseph S. Reichert, Samuel A. McNeight and Arthur A. Elston, Niagara Falls, N. Y., assignors to E. I. du Pont de Nemours & Co., Wilmington. A dry stable detergent composition which yields in aqueous solution an oxidizing agent of high activity, said composition comprising a solid inorganic peroxygen compound, an organic acid anhydride, and a solid detergent.

No. 2,362,471, Parasiticide, patented November 14, 1944, by Robert R. Dreisbach and Fred W. Fletcher, Midland, Mich., assignors to The Dow Chemical Co., Midland, Mich. An insecticidal composition comprising as an active toxicant an alkyl-substituted mono-nitro-napthalene and a carrier therefor.

No. 2,362,472, Fumigant Mixtures, patented November 14, 1944, by Robert R. Dreisbach and Fred W. Fletcher, Midland, Mich., assignors to The Dow Chemical Co., Midland, Mich. A method for controlling insects and related parasites comprising the step of exposing such organism to the vapor of a fumigant composition comprising a mixture of methyl bromide and monomeric methyl isopropenyl ketone as the major toxic ingredient.

No. 2,362,475, Fumigant, patented November 14, 1944, by Fred W. Fletcher and Robert R. Dreisbach, Midland, Mich., assignors to The Dow Chemical Co., Midland, Mich. A method for controlling insects and related parasites comprising the step of exposing such organisms to the vapor of a fumigant composition comprising nonomeric methyl isopropenyl ketone as a major toxic ingredient.

No. 2,362,614, Insecticides, patented November 14, 1944, by Jose B. Calva, St. Paul. An insecticide containing as an essential ingredient a fluoride of the amines and polyamines of alkyls having substituent atoms in their structure in which the fluorine atom is directly linked to an amino nitrogen atom.

No. 2,362,760, Insecticidal Compositions, patented November 14, 1944, by Kenneth E. Maxwell, Martinez, Calif., assignor to Shell Development Co., San Francisco. A method for increasing the deposition of suspended insecticidal toxicants from an aqueous carrier, comprising adding there a small amount of the malate of

$R\text{-}NH\text{-}CH_2\text{-}CH_2\text{-}NH\text{-}CH_2\text{-}CH_2\text{-}OH$

wherein R represents a mixture of acyl radicals from palmitic and stearic acids.

No. 2,362,882, Detergent and Method of Production, patented November 14, 1944, by William F. Carson, Jr., Brunswick, Ga., assignor to Hercules Powder Co., Wilmington. A salt selected from the group consisting of alkali metal, ammonium an amine salts of a sulfation product of a pentaerythritol ester of a hydrogenated rosin, said ester having at least one free hydroxyl group in the molecule.

No. 2,363,694, Hydrogenation of Fatty Acid Soaps, patented November 28, 1944, by John Rose and Joseph Abraham Valentine Turck, Jr., New York, N. Y., assignors to Colgate-Palmolive-Peet Co., Jersey City. The process of partial hydrogenation of water-soluble salts of polyolefinic fatty acids which comprises treating a solution of salt of polyolefinic fatty acids in water with hydrogen in the presence of a nickel hydrogenation catalyst at a temperature above 40°C. but not above 90°C. and at a pressure above 50 pounds per square inch.

No. 2,363,928, Insecticide, patented November 28, 1944, by Seaver A. Ballard, Oakland, and Vernon E. Haury, El Cerrito, Calif., assignors to Shell Development Co., San Francisco. An insecticidal composition comprising a carrier and a carboxylic acid ester of an unsaturated alicarbocyclic ketol having the carbonyl group in the cyclic ring, said compound being further characterized by having between 10 and 34 carbon atoms.

Sulfonation Reactions

To a mixture of amyl alcohol or other monohydric alcohol containing not more than eight carbon atoms, and an unsaturated fat such as olive oil, or fatty acid such as oleic acid, containing at least an equimolecular proportion of the alcohol, a sulfonating agent such as sulfuric acid is added. The amount is insufficient to sulfonate the mixture completely. The mixture is heated to a temperature in the range of 70-120° C. Then at a temperature of 0-35° C., sufficient sulfonating agent is added to complete the sulfonation. Sulfonation is completed at the low temperature. J. T. Eaton and P. W. Volk, to E. F. Houghton and Co. U. S. Patent No. 2,352,698.

Mildew Proofing

Organo mercurial compounds are proposed for use as fungicidal and bactericidal agents. D. B. Greeves-Carpenter. Textile Mfr. 70, 82 (1944).

No. 594Q
SCREW CAP

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Container No. 594Q is designed for shipping thin liquids. Unusual strength is provided by the five thickness chime made with the double seaming method of attaching head and bottom. The thinnest of liquids can be safely shipped in this drum type container that stays leakproof even with rough handling. Three styles of openings can be furnished—

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Bentonite is widely used as a detergent in soaps and soap powders, as a base for hand soaps, in polishes as a suspending medium for abrasives, as modifying agent in alkali cleaners and direct in laundering operations.

"THE COLLOIDAL CLAY OF INNUMERABLE USES"

Innumerable users in many industries employ Bentonite for a variety of purposes, either in dry form, as an aqueous dispersion in the colloidal phase (gel form) or with other constituents for the obtainment of one or more of the general objectives here partially listed: Effective detergency; emulsification; suspension; absorption or adsorption medium; non-oily lubrication; uniformity of dispersion; mineral adhesive; filling or coating of paper, rubber, etc.; thickening agent; sedimentation clarification; water impedance; catalyst or catalyst carrier; plasticizing; zeolitic water softening; building of soaps or alkalies; carrier or adhesive for insecticides, fungicides or antiseptics.

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Schundler Technical Service is available. We suggest you inform us of problems in which a Bentonite product may be the solution. We maintain a well equipped research laboratory and a competent technically trained staff.

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Degener Heads Chicago Assn.

F. A. Degener, Chicago manager for Heyden Chemical Co., New York, was elected president of the Chicago Perfumery, Soap and Extract Association at the annual business meeting Dec. 12. Other new officers include: vice president, Walter R. Nay, Mallinckrodt Chemical Works; treasurer, Martin Vance, Givaudan - Delawanna, Inc.; secretary, Carl Edwards, Fritzsche Bros. Installation of the new officers was scheduled for Jan. 9. Some 712 members and guests attended the Association's annual Christmas party Dec. 9, the largest turnout in the organization's history. Held in the Stevens Hotel's grand ball room, the festivities included a turkey dinner, followed by dancing.

Phila. Quartz Service Plan

A new service emblem plan for employees of Philadelphia Quartz Co., Philadelphia, manufacturers of silicates of soda, was announced at a recent employees' dinner. All employees associated with the company for 10 years or over will receive silver or gold pins or buttons designating specific periods of service. Top length of service honors were awarded to John A. Wilson, construction superintendent, who has been with the company 42 years. There are 55 employees who have been with the company for over 25 years.

NAM Honors Swift President

John Holmes, president of Swift & Co., Chicago, has been elected a director-at-large of the National Association of Manufacturers.

Thom, Westvaco Sales Head

A number of changes in personnel were announced recently by Westvaco Chlorine Products Corp., New York. J. C. Thom, acting sales manager since Aug., 1943, was named sales manager of the corporation. He succeeds the late J. Rivers Adams, a Marine Captain, killed in action on Guam, last summer. Fritz Von Bergen has been named to the technical service department, while David C. Kirk and Frank D. Nichols have joined the Westvaco sales division.

40-Hr. Week for Lever Canada

Adoption of a 40-hour week in its Toronto plant was announced Dec. 28 by Lever Brothers of Canada. The company explained in a statement that the National War Labor Board had given approval to a reduction of eight hours in the workweek and payment of an efficiency bonus of 20 per cent so "take-home" earnings of employees remain unchanged. Increased efficiency obtained through suggestions of a joint union-management committee enabled the company to demonstrate to the board that a 20 per cent reduction in labor costs would be achieved through adoption of the shorter work period, the statement said.

Controllers Elect Maver

William D. Maver, controller of J. B. Williams Co., Glastonbury, Conn., was recently elected to membership in the Controllers Institute of America. The Institute is a technical and professional organization of controllers devoted to improvement of controllership procedures.

COSMETIC TECHNICIAN WANTED

Leading manufacturer of toilet soaps and toilet articles with 28 subsidiary offices in principal countries of world requires a male cosmetic technician to head manufacturing toilet article department for any of its four large subsidiaries in Latin America.

Applicant must have broad experience in formulating and manufacturing fine cosmetics of all types—perfumes, lotions, creams, face powders, rouge, lipsticks, astringents, deodorants, mouth wash, mascara, nail polish, etc.—and be able to develop practical formulas for new cosmetics in conformance with changing tastes, incorporating latest inventions in line of cosmetics.

Indicate education, experience, results obtained. Give names and addresses of firms for whom you have worked, how long with each. State salaries you have received and what you expect with us. Give age, civil status, health condition, nationality and if any foreign language spoken.

This is an opportunity that comes once in a lifetime. At present you may be working as an assistant and may have ability to manage a manufacturing toilet article department, but cannot get ahead for reasons beyond your control. With us your future depends entirely on the results you obtain. Write giving full information. All replies strictly confidential.

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Not until Valencia — the standard of American Pumice — was discovered at Grants, New Mexico, was it thought that a domestic pumice could match the quality of imported Italian Pumice. This inexhaustible deposit at Grants is true pumice stone and not a volcanic ash. It is physically and chemically equal in every respect to the now unobtainable Italian Pumice. • The Valencia plant's output of grades for every need is rigidly under control for particle size, purity, weight and color.

Check this table comparing Valencia with the highest grade of imported Italian Pumice. See for yourself that Valencia is truly the standard of American Pumice.

	American Pulverized Per Cent	Italian Select Per Cent
Silica	72.90	73.24
Alumina	11.28	10.61
Iron Oxide	.86	1.57
Titanium Oxide	.06	.10
Calcium Oxide	.80	1.10
Magnesium Oxide	.36	.40
Soda	3.64	3.03
Potash	4.38	5.58
Sulphuric Anhydride	.03	.05
Loss on ignition	5.20	4.04

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GLASS CLEANERS

(*From Page 31*)

melt 625 grams of stearic acid and add the preceding mixture, stirring constantly. When the action ceases pour into molds. This quantity of mixture will make about 500 crayons which have been found satisfactory for both winter and summer use (26).

A product containing a high proportion of soap may be made as follows (8):

	Parts
Glycerine soap	65.0
Glycerine	30.0
Turpentine	5.0
White bole	to desired consistency

Melt the soap on a water bath, add the glycerine and turpentine and enough of the bole to form a moldable composition. Mold as pencils while still hot.

As is evident from the above, a great variety of glass-care products can be made by simple means by any enterprising manufacturer. It is possible to produce a well-rounded line or to concentrate upon one item and push it. The market is waiting and there is always room for a good product.

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Heads U.S.I. Anti-freeze Sales

Arthur E. Tongue, formerly in charge of advertising and sales promotion for Chrysler automobiles, has been appointed manager of anti-freeze sales for U. S. Industrial Chemicals, Inc., New York. He will be in charge of the sale of U. S. I.'s "Super-Pyro" anti-freeze, as well as its other automotive products.

Cowles DETERGENT SILICATES

Crystamet Reg. U. S. Pat. Off.
Pentahydrate Sodium Metasilicate Cowles CRYSTAMET is an exceptionally pure, perfectly white granular sodium metasilicate with the normal 42% water of crystallization. Excellent solubility, uniformity, chemical stability.

Drymet Reg. U. S. Pat. Off.
Anhydrous Sodium Metasilicate. Cowles DRYMET is the most highly concentrated, most economical form of sodium metasilicate available. DRYMET contains no water. Yields nearly twice the chemical strength of hydrated sodium metasilicate at a substantial saving. Completely soluble, non-caking, easy to handle.

Dryorth Reg. U. S. Pat. Off.
Technically Anhydrous. Sodium Orthosilicate. Cowles DRYORTH is a high pH detergent silicate with valuable peptizing, emulsifying, dirt-suspending power. Recommended for heavy duty detergency requiring high Na_2O value.

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DISHWASHING SANITATION

(*From Page 27*)

use of 2 additional moist swabs increased the recovery by an additional 10 and 7 per cent, respectively.

The amount of suspending fluid plated has in most cases been an aliquot portion, such as 1 ml. (22, 29a, 35, 36c, 40). Some investigators (12, 36a), however, preferred plating the entire amount, but in such cases the medium used contained 2 per cent instead of 1.5 per cent agar.

Effect of Temperature and Holding Period on Recovery

Two very important features of the swab-rinse plate-count method are the time that elapses between swabbing and plating and the temperature at which the suspending fluid is kept during that time. The length of the holding period varies greatly, being 1 hour (31), 2 hours (12), 3 hours (5), and 4 hours (35). Some investigators have recommended plating immediately after swabbing (5, 29a, b). France et al. (13) reported that a period of 5 hours was decidedly unsatisfactory. They have further studied the effect of the length of the period of holding on the viability of the bacteria. They showed that, at room temperature, the decrease in the number of bacteria was such, even after 30 minutes, as to be sufficient to make the results of little value for testing. Hence, the holding period of 2-3 hours, allowed in many technics, does not give adequate estimates of the sanitizing procedures used with utensils. On the other hand, if the suspension is kept at 3-5° C., the rate of decrease of the number of bacteria is much slower and suspensions held for up to one hour yield satisfactory counts, and are still usable after 2 hours, at least with Butterfield's phosphate buffer solution (13). With saline, the suspensions are not useful after 1 hour. Those results were confirmed in practical runs (after 2 hours, the average survival was 92 per cent with Butterfield's solution and 75 per cent with saline solution). These conclusions were later applied by Krog and Marshall (23a) and the A.P.H.A. (35).

(*To Be Concluded*)

TABLE II*

Effect of Holding Period and Temperature on Survival of Bacteria

	Average % Survival (Count at beginning taken as 100%)						
	0.5	1	1.5	2	2.5	3	5 hrs.
Butterfield's Phosphate, Room Temperature	68	43.3	30.5	20.8	14.6	9.5	
Butterfield's Phosphate, Chilled		93.5		85.9			72.8
Physiological Saline, Room Temperature	66.6	44.9	30.2	22.2	14.0	10.3	
Physiological Saline, Chilled		83.6		66.1			34.5

*rearranged from the data of France et al. (13).

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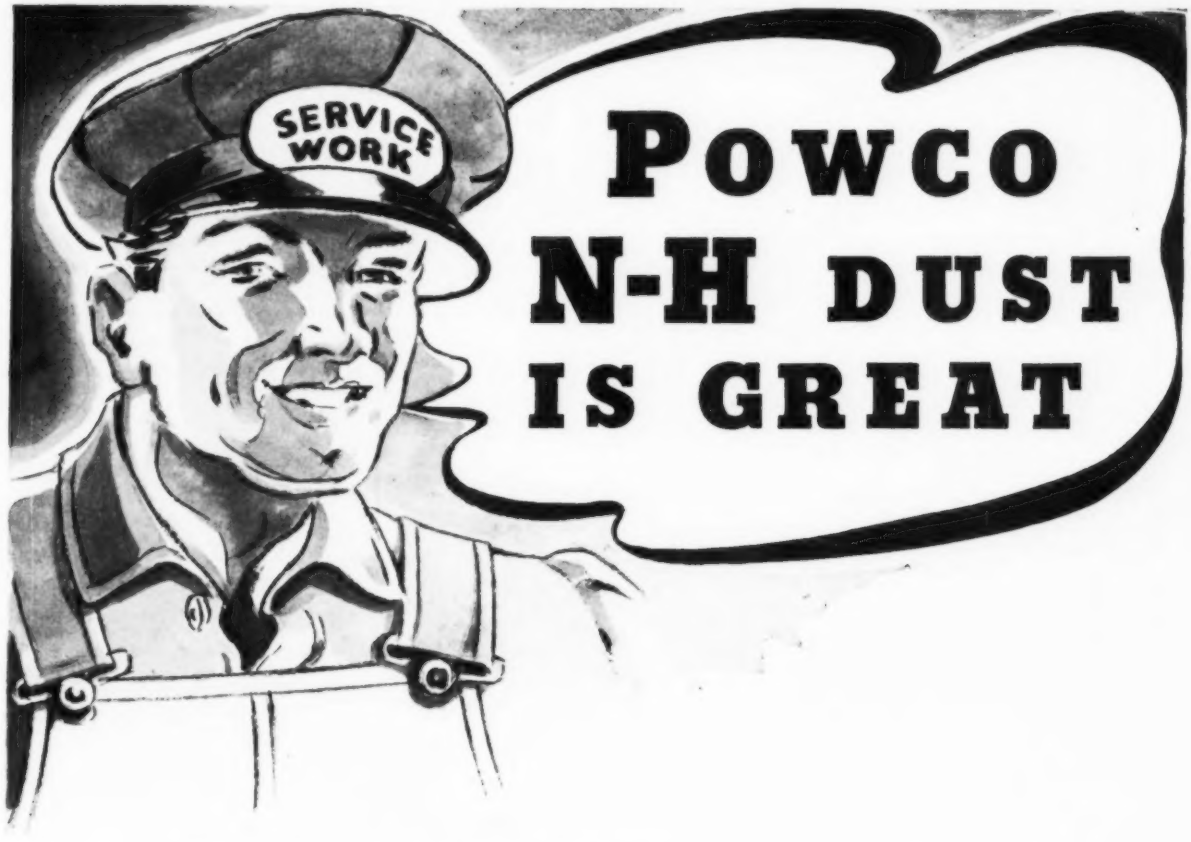

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INSIDE NEWS

JANUARY PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1945

Canned Vegetable Consumption More Than Doubled Since 1909

According to the Bureau of Agricultural Economics, U. S. Department of Agriculture, the per capita consumption of commercially canned vegetables in the United States has more than doubled since 1909, while the consumption of fresh vegetables increased about one-fourth. The per capita intake of canned vegetables has risen from 15 pounds in 1909 to 37 pounds in 1943. When canned weight is converted roughly to fresh weight, about 26 pounds of processed vegetables were consumed in 1909 compared with 63 pounds in 1943. These figures show how comercially processed vegetables are becoming a larger factor in the American diet.

In 1909, approximately 7.8 pounds of fresh (i.e. not commercially processed) vegetables were consumed for every pound of commercially canned vegetables eaten (on fresh-weight basis). By 1943, even with very heavy noncivilian takings from the total vegetable pack that year, the ratio had dropped to 3.7 pounds of fresh to 1 pound of commercially canned vegetables, converted to fresh basis. Although much more canned corn and peas are eaten now than before World War I, most of the increase has come in canned vegetables other than these or whole tomatoes, as is shown by the per capita consumption of 5.3 pounds of such vegetables (processed weight) in 1909 and 19.9 pounds in 1943. Tomato products account for much of this increase.

There has also been a material increase in the consumption of vegetables processed by other methods. From 0.4 pound per capita in 1942, the first year for which data are available, frozen vegetable consumption rose to 1.1 pounds in 1942, and dropped to .76 pound in 1943. Frozen vegetables are still an insignificant part of the food picture on an over-all basis.

Only small quantities of dehydrated vegetables have been available for civilian consumption. Total production was 5.2 million pounds in 1939 and about 120 million pounds in 1943. Most of the production in 1943 went to fill noncivilian requirements.

Frozen and dehydrated vegetables, while not significant on an average basis, totalled only 1.2 pounds per capita in 1942. However, they have become important items in the consumption of some groups of people, particularly those in the higher income brackets. Consumption in these processed forms may become greater after the war. 844

Versatile Stabilizer

A product separable from oats by mechanical means has unusual properties in the production of useful emulsions. The material is low in starch and relatively high in protein. It is claimed to replace expensive gum stabilizers in cream cheese and processed cheese spread, salad dressings of the mayonnaise type, ice creams and sherberts, bakery icings and fillings. In fact, it can be used wherever it is desired to attain unusual thickening, gelatinous and gummy characteristics in a food composition containing a minor amount of water or similar aqueous medium. 845

Production Line Jelly

A patent has finally been issued covering a most interesting system of continuous jelly manufacture. The principle of the apparatus is that the mixture to be treated, in this case the fruit juice and sugar, is passed continuously through a heating zone at a predetermined temperature and without substantial agitation. The equipment is so designed that the rate of passage of any portion of the mixture through the heating zone is substantially equal to the overall rate of passage of the entire mixture through the zone, thereby insuring a uniform product. In the case of jelly manufacture the results are particularly good from the standpoint of flavor, color, clarity and texture, because most of the inversion of the sugar can be brought about at a temperature below the boiling point. The absence of agitation avoids formation of undesirable scum and the incorporation of air into the product under treatment. 846

Low Titer Soap Cleans Rugs

In cleaning rugs, greater efficiency both from the standpoints of economy and thoroughness of cleaning comes from use of soap mixture containing a ratio of 8 lbs. of low titer soap and 1 lb., 10 ozs. detergent to 100 gallons of water. This solution has an active alkali content of 135 parts per 100,000 parts of water and an inactive alkali content of 100 parts per 100,000 parts of water. The alkaline pressure as measured by pH value was 11.7. Comparative tests on a series of soaps indicated that there is an optimum alkaline value at which the highest cleaning efficiency is attained. High titer soaps were found to form heavy lime soap precipitates in hard water and to be difficult to rinse out of rugs at low temperatures in either soft or hard water. If allowed to remain in the rug, they were found to cause it to soil more quickly. Of 165 rugs test-washed, all but 48 of which were 9 x 12, an average of 3.43 pounds of dirt was taken from each rug. The maximum dirt removed from any single rug was 11 lbs. and the minimum was ½ lb. 847

What The Public Likes

Consumer preference tests of flavor have been handicapped heretofore by the elaborate scoring systems developed by professional tasters. A statistical method which makes possible a far more simple choice on the part of a group of untrained observers representing any desired consumer group has been developed at the University of Connecticut. It deserves careful consideration by any manufacturer contemplating taste tests, and every food manufacturer should contemplate taste tests on his product at intervals. Like any other statistical method, the mathematics involved in calculating the results are at first sight formidable, but the point is that these calculations occur in the manufacturer's organization. All that the public has to do is decide whether it likes this or that better, eliminating the troublesome questions of why and how much. 848

Cream In Your Coffee

A dark greenish or greenish black discoloration sometimes mars the attractive color effect when evaporated milk is added to coffee. This is due to trusting a bit too far to the good nature of the canned milk. If some of the milk must be kept 4 or 5 days after the can is opened, it should be stored in a glass or porcelain container.

The discoloration is due to an increase in the iron content of the milk, which becomes noticeable only when a small quantity is held in an opened can for several days.

The coffee maker is also implicated when discoloration appears, since the extent of discoloration and the color developed depend on the pH of the coffee-milk mixture, and the amount of tannins in the coffee extract. The suspicion is inescapable that coffee which discolors wasn't fit to drink in any case, with or without cream. 849

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Salmon Spread

A small quantity of smoked salmon, when ground with larger amounts of canned salmon selected for flavor, will produce a particularly delicate and pleasing sandwich spread. The dry smoked fish absorbs the excess oil from the canned salmon, and the smoked flavor is distributed evenly throughout the mass. The product is packed in small containers and processed at 230 deg. F. for about 35 minutes. 850

Pressure Keeps Bacteria Down

Food technologists in other fields may well be interested in a series of experiments on fluid milk which indicate that pressure of a neutral gas will cooperate with heat treatment to reduce and keep down bacterial counts. Most strikingly, milk inoculated with *E. coli*, pasteurized at 130 deg. F. for 30 minutes and held under 100 p.s.i. of nitrous oxide showed no *E. coli* on plate tests, while the control, pasteurized but not subjected to pressure, gave a count of 44,000. Pressure applied before pasteurization also is effective. 851

Postwar Supply of Lauric Acid

Extensive development of Brazil's vast Babbassu resources will bring the products of this tree to a major position after the war. While every part of the tree, whole nut, shells and husks, oil, mesocarp and epicarp, and cake residue, has commercial importance, the oil which could conceivably supply the world's demands for lauric acid containing oils of the coconut and palm kernal type, is the most important. It is used for soap, shaving creams, and vegetable butter. Caprou, caprylic and capric acids of the oil make it useful in bulletproof glass. 852

Quick Distillation

The use of infra-red radiation for distillation and evaporation involves direct absorption of the heat without transference by the walls of the container. By its use in a continuous process and with a contact time of only a fraction of a second, solutions can be evaporated which previously could not be concentrated except by lengthy and laborious batch processes. 853

Beer Proteins and Metallic Contaminants

Beer proteins and the electron microscope are getting together to answer many questions that have puzzled brewers. One of the most important is the exact nature and the source of metallic contaminants.

Protein aggregates in the beer, which seem to be those involved in haze formation, show a network of interlacing particles and filaments when viewed at 28,000 magnification under the electron microscope. When metallic ions are present chain-like clusters are formed—a distinctly different and highly characteristic one for each metal. Thus, it may eventually be possible to tell at a glance not only whether metallic contamination has occurred, but whether processing equipment or containers must be blamed.

And, always, when the source of trouble is found the remedy can be found, too. 854

Technical Topics

DRYING LINSEED OIL—The rate of drying of linseed oil is slightly accelerated by methylene blue; slightly reduced by thionin, toluidin blue, phenosafranin, and neutral red; and greatly reduced by nile blue. Ascorbic acid has little effect; barbituric acid is decelerating; thiosinamine and diethiosinamine are markedly decelerating. 855

METHANOL—Pure, synthetic methanol has been found an effective control for crown galls which weaken and often kill almond, walnut, peach and plum trees. 856

ORGANIC COPPER SALTS—Organic copper salts used as fungicides are more effective when dissolved in white mineral oil, painter's naphtha, turpentine, or pine oil, than in cottonseed oil, but the solvents are more damaging to foliage. Copper 3:5-di-isopropyl salicylate has special efficacy but at 0.1 per cent copper strength in white oil is phytocidal. 857

SODIUM SILICATE—Sodium silicate is advanced as a replacer of phenolic resins as an impregnating agent for porous metal castings to render them impervious to gasoline and similar liquids. 858

NONTOXIC ANTISEPTIC—Ethyleneglycol monophenylether is offered as a non-irritating, nontoxic antiseptic, especially active against pyocyaneus. Combined with penicillin, sulphonamides, and other antiseptics, it produces destructive effects against the complete bacterial flora of a wound. 859

WHOOPING COUGH DETERRENT—Pertussis toxin and toxoid has been developed for use in immunizing children against whooping cough and also in the treatment of the disease itself. 860

BIOTIN FROM WASTE LIQUORS—Process for recovering biotin, a vitamin of the B complex group from waste liquors, resulting from the production of fumaric acid by molds, develops about one gram of pure biotin from 2,000 gallons of liquor. 861

SHELLAC SUBSTITUTE—A thermoplastic composition derived from stump pine is said to possess properties, chemical and physical, corresponding closely to real shellac. This shellac substitute is designed primarily for use in making phonographic records. 862

DEXTRIN—Dextrin is now obtained from starch by a new method incorporating a mineral acid catalyst into granular starch by drying the starch to a low moisture content and mixing a dry gas into it. 863

STARTING MATERIAL—l-primaric acid and maleic anhydride from longleaf pine or slash pine for use as a starting material in the manufacture of resins, varnish and dyes is effected by the refining of pine oleoresin. 864

APPLE JUICE—"Flash" pasteurization can best preserve the flavor, aroma and appearance of apple juice. This process consists of holding the juice in bottles or cans for one minute after filling at a temperature of 170 to 175 deg. F., inverting the containers or turning them on their sides for three minutes, then cooling rapidly. 865

TRIETHYLENE GLYCOL—Triethylene glycol is reported the most potent bactericidal and viricidal substance yet found and that the vapor sprayed in a room has no deleterious effects but marked influence in reducing respiratory diseases. 866

NEW OIL FOR PAINT—An entirely new oil has been extracted from milkweed seeds, accumulating as a waste by-product in the manufacture of a kapok substitute from milkweed floss. Very close to soybean oil, it is useful for paints and edible purposes. 867

NEW VARNISH BASE—Rubber chloride is the basis of a new varnish for lining and coating food containers. Pure rubber chloride is cut with a volatile solvent along with a small quantity of a plasticizer, then thinned with a mixed solvent. After application the coating is cured by heating with guanidins or like-acting reagents. 868

Every effort will be made to furnish additional information on these articles. Where such information is not obtainable, we will refer inquiries to the original source of the article. Write to National Can Corporation, 110 East 42nd Street, New York City. Please mention the number at end of article—also name of the magazine you saw it in.

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¶ All **Target** products are manufactured in our own plant under the strict supervision of a competent chemical staff.

¶ **Target** products also include a full line of soap powders, detergents, alkalies, cleansers, dishwashing compounds, insecticides, disinfectants, and allied sanitation chemical products manufactured especially for the jobbing and supply trades.

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Extermination of disease-carrying, food-destroying, property-and-health menacing rats is the purpose of nation-wide rat control programs, now under way in hundreds of American communities.

Effective agent is **RED SQUILL, FORTIFIED DETHDIET BRAND,** meeting the standard established by the Fish and Wild Life Service of the U. S. Department of the Interior —

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4 TIMES AS POTENT
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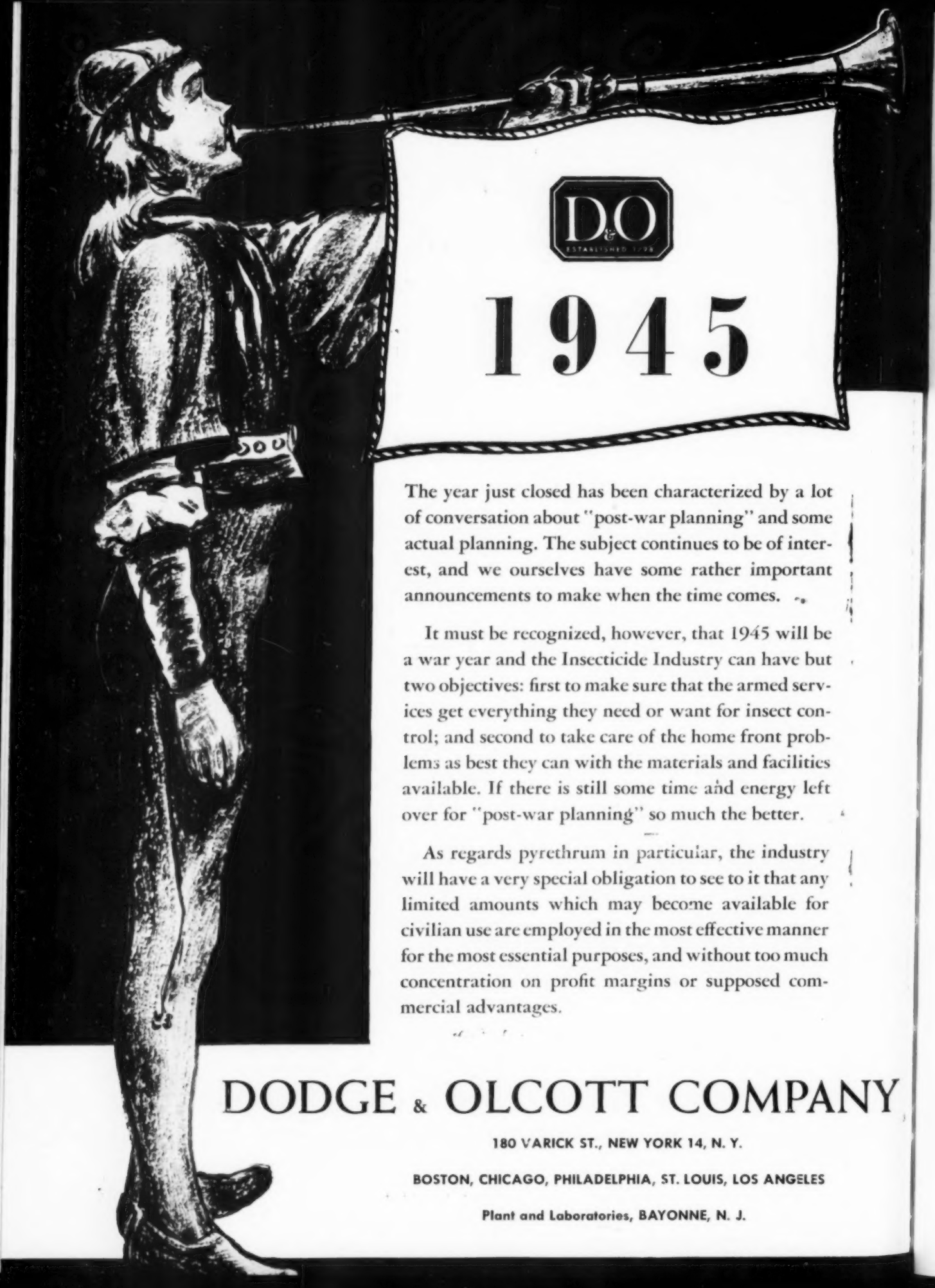
THE WORLD'S LARGEST BOTANICAL DRUG HOUSE

BUY WAR BONDS AND STAMPS . . . FOR VICTORY



D&O

ESTABLISHED 1798

1945

The year just closed has been characterized by a lot of conversation about "post-war planning" and some actual planning. The subject continues to be of interest, and we ourselves have some rather important announcements to make when the time comes.

It must be recognized, however, that 1945 will be a war year and the Insecticide Industry can have but two objectives: first to make sure that the armed services get everything they need or want for insect control; and second to take care of the home front problems as best they can with the materials and facilities available. If there is still some time and energy left over for "post-war planning" so much the better.

As regards pyrethrum in particular, the industry will have a very special obligation to see to it that any limited amounts which may become available for civilian use are employed in the most effective manner for the most essential purposes, and without too much concentration on profit margins or supposed commercial advantages.

DODGE & OLCOTT COMPANY

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An **ADVERTISING AGENCY** *Describes*

Your Institutional Market!

"Every single segment of the institutional field shows promise of being a bigger customer than ever before.

"The institutional field consists of those businesses and services whose functions are the mass housing and mass feeding of individuals. The major segments of this market include hotels, hospitals, restaurants, schools and colleges, industrial cafeterias, clubs, homes and asylums, public institutions and similar establishments. In addition it includes a vast array of government institutions such as veterans' hospitals, office buildings, welfare facilities and others.

". . . There are approximately 300,000 institutions in the United States containing a total of 4,350,000 rooms. Their total floor area is 3,250,000,000 sq. ft. They employ over 4,000,000 workers. During a normal operating year the institutional field . . . is responsible for the purchase of $6,400,-000,000 worth of maintenance and operating supplies and equipment. In the immediate post-war period this figure will reach $8,500,000,000, according to most recent surveys.

"As huge as the institutional market is today, it is going to be even greater after the war. The rapid growth of such influences as hospital insurance . . . the eating-out habit . . . the pent-up travel urge . . . the war boom in industrial cafeterias . . . all these and others . . . are exerting an upward pressure on the institutional market and every single segment of this field shows promise of being bigger than ever before . . . There is your institutional market! I strongly urge you to go after it."

The foregoing is from a talk by Mr. M. J. Evans, chairman, Evans Associates, Inc., advertising agency, Chicago, describing the institutional market before the June, 1944 Convention of manufacturers of cleaning compounds, disinfectants, insecticides and sanitary chemicals. Mr. Evans' photo, addressing this group, is shown at the right.

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May Change Cooking Equipment Quotas
Widespread Use of Glass Block Seen for Postwar
No to Guest Now— None Tomorrow!
Experts Tell How to Wash Wallpaper
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MAGAZINE
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Urge Use of No-Point Low-Point Food Recipes
FUNCTIONAL DESIGN, EASIER MAINTENANCE WILL BE FEATURED
DECORATORS STRESS POWER OF COLOR TO
Serve These Foods!
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through which you can reach all related divisions of the institutional field. If your present or contemplated products have an application to this field, your advertising messages in the columns of INSTITUTIONS Magazine will gain for them the kind of acceptance they must have to share in the huge institutional market.

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of Mr. Evans' study and description of the institutional market has been printed in booklet form. Copies are available upon request. Write to INSTITUTIONS Magazine, 1900 Prairie Ave., Chicago 16, Illinois.

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Be one of the first to package a FORTIFIED RED SQUILL product! PRENTISS' FORTIFIED RED SQUILL as a base will produce a raticide consistently high in KILLING POWER that it can be used with safety where food is prepared and stored, in the home, about the farm, dairy, chicken farm, etc. PRENTISS' FORTIFIED RED SQUILL POWDER is biologically tested and is guaranteed to meet the recommendations of the Fish and Wildlife Service for a Minimum Lethal Dosage of 500/600 mg/Kg of rat.
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No matter how pleasant the perfume in your spray, it shouldn't linger too long on the premises. It has a single mission — to cover the odor of the killing agent. That work done, it should have the courtesy to leave. We do that type of perfuming so well we would like you to know about it.

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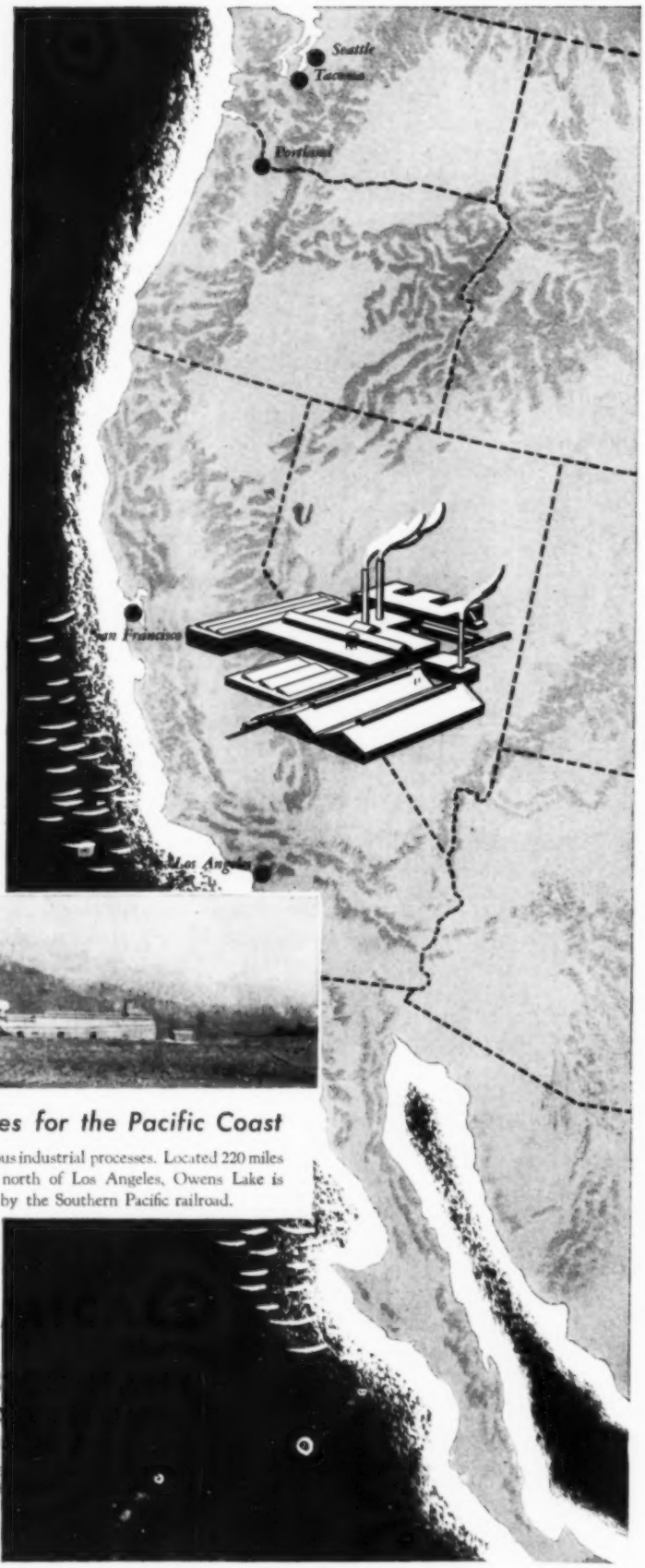
COLUMBIA makes another contribution to national industrial progress . . . Pacific Coast Production

The entire nation looks ahead to the continued expansion of Pacific Coast industry, so necessary to America's future. Columbia is proud to join with the hundreds of industries which will help to add this important chapter to American industrial history.

As announced recently, the Pacific Alkali Company has become a Columbia division. Pacific's rich alkali deposits provide the source of an abundance of essential industrial chemicals. And the production and distribution facilities of Columbia combine to guarantee that these needs of industry, up and down the Pacific Coast, will be efficiently and economically served.

This expansion of Columbia facilities is another example of its progressive policy which seeks not only to serve the immediate needs of its customers throughout the nation, but to anticipate them to as great an extent as possible.



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Owens Lake is a natural deposit of alkalies consisting principally of Soda Ash, Borax and Sesqui-Carbonates . . . chemicals essential in numerous industrial processes. Located 220 miles to the north of Los Angeles, Owens Lake is served by the Southern Pacific railroad.

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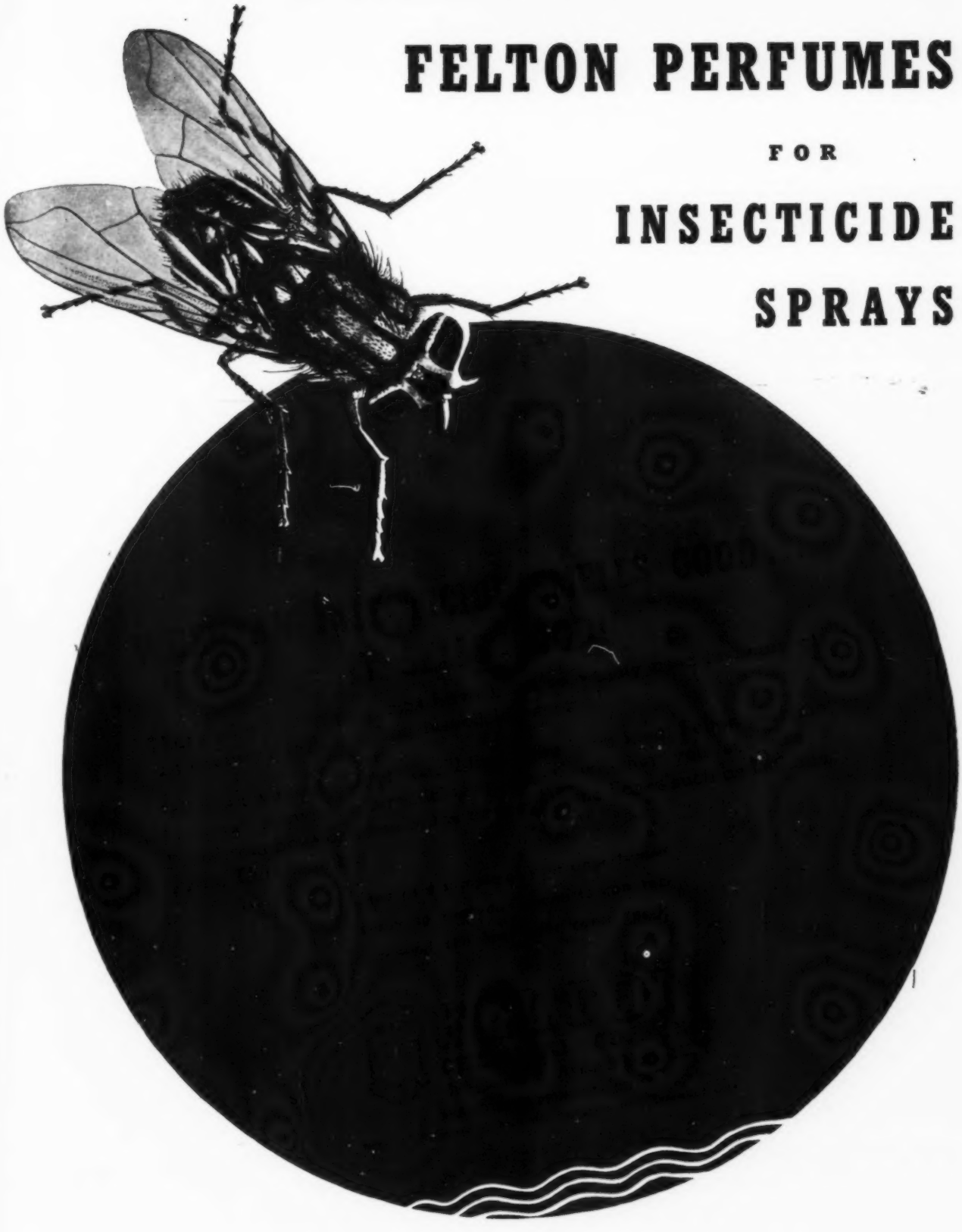

FELTON PERFUMES

FOR

INSECTICIDE SPRAYS

a promise faithfully kept!

A "star" — just a plain, simple four letter word that unfolds a whole universe of meaning to us who have striven hard to be able to say "We have kept faith ".

A star — a token of honor added to the Army-Navy "E" award we cherish with pride but which we received with great humility.

A star — an inspiration to each and every one of us to work with undiminished zeal towards greater achievement — not for the hope of glory but for the love of righteousness and the lasting dignity of peace-loving peoples.

With full hearts, we gratefully receive the Star — and rededicate ourselves, our souls and bodies faithfully to perform our duties of production.

David D. Catts
President

COLE LABORATORIES
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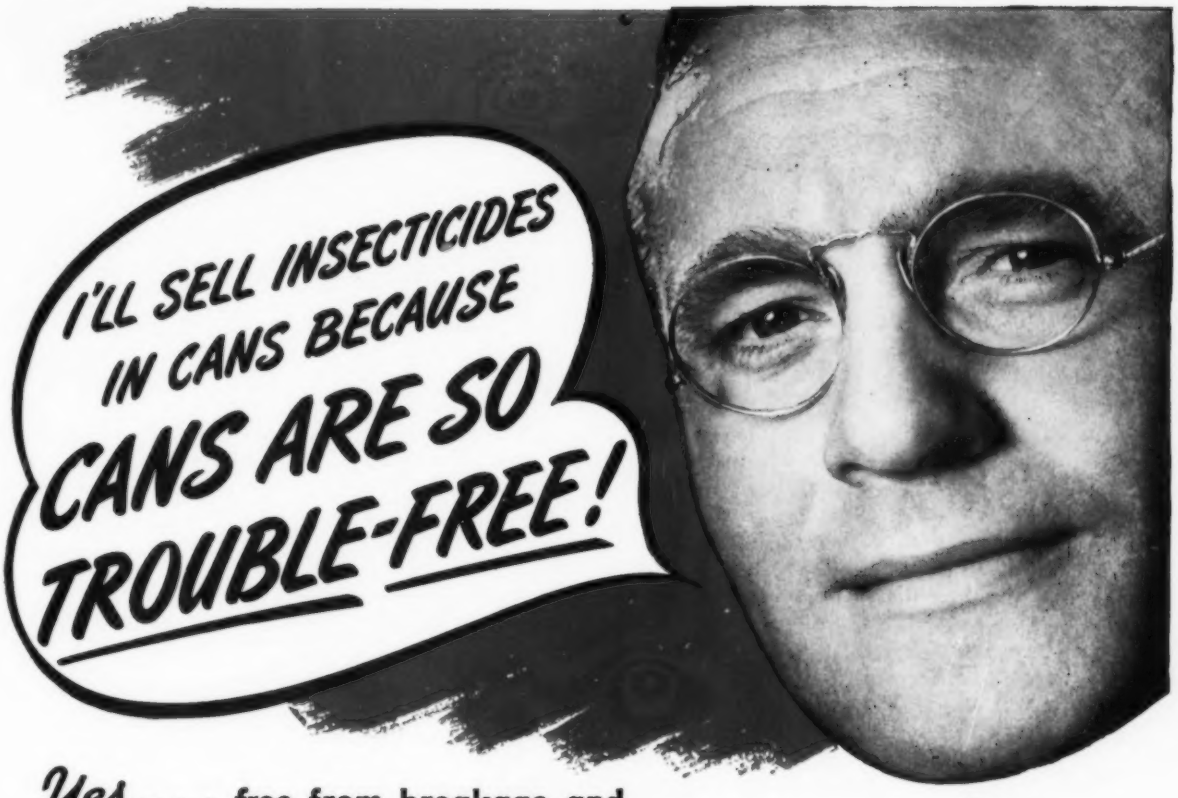

Yes . . . free from breakage and light-deterioration . . . A-1 for display value, sales appeal, convenience!

• "I make insecticides, waxes, and polishes. But I'd feel the same way if I were a retailer or housewife. As quick as I can get 'em again *I'll pack my products in cans* because cans cut out a bunch of headaches.

"Cans banish the biggest bugaboo of all—breakage. And without the danger of breakage—packing, shipping and handling are easy.

"What's more, cans don't leak and spoil their labels. They stay clean, attractive, make effective displays. Cans keep out all light rays, so harmful to pyrethrum and rotenone. And cans are fire-resistant.

"I'm all for pleasing the public. And the public has always preferred cans for products like insecticides, waxes, and polishes."

NATIONAL ADVERTISING SUPPORT!

More than 30,000,000 printed messages appear monthly in Sunday newspapers throughout the U.S.A. and in 10 great national magazines, to remind consumers of the many advantages of steel-and-tin cans.

5 BIG REASONS *Why Consumers Prefer Insecticides in Cans*

1. Cans don't break.
2. No dangerous leakage.
3. Prevent air- and light-deterioration.
4. Cans are more convenient.
5. . . . And more economical.

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NO OTHER CONTAINER PROTECTS LIKE THE CAN

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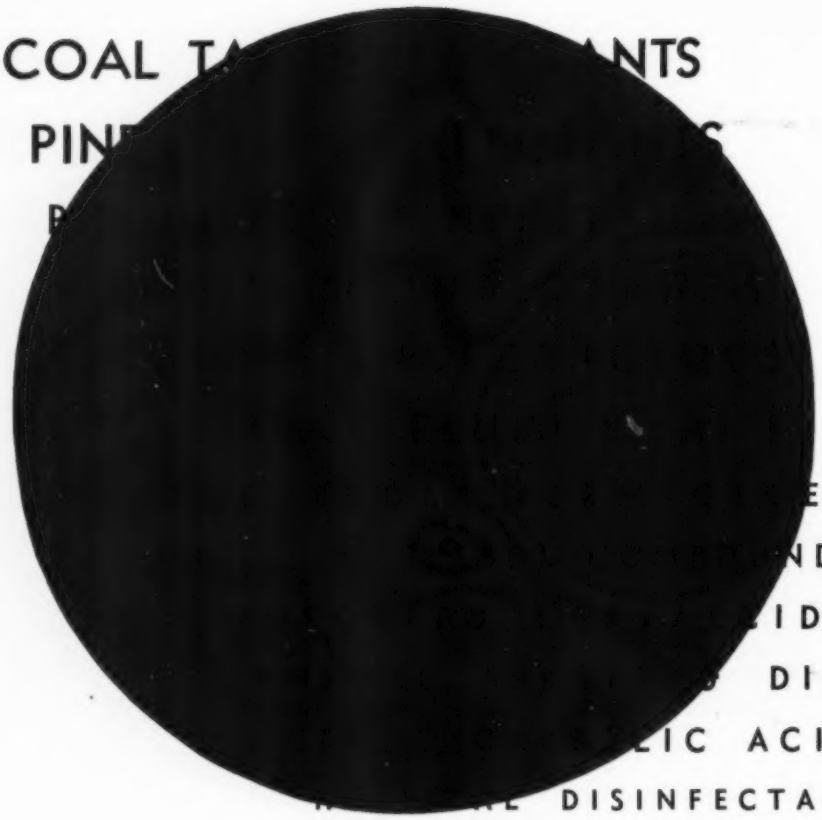

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Quality Products — To Fit All Your Requirements—Whether Strength, Color, Odor, Price — or Special Specifications.

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SANITARY PRODUCTS

A SECTION OF SOAP

Official Publication National Association of Insecticide & Disinfectant Manufacturers

FOR 1945, the outlook in disinfectant and insecticide manufacture is for a continuation of change, for a development of new things. During the year, there may also be some clarification of the scientific waters which have been muddied by controversy over the past eighteen months. Similarly, the true worth of some of the newer things in disinfection and insect control may be more accurately evaluated and stripped of fantasies with which they have been surrounded by some too-enthusiastic sponsors. But withal, there can be but one aim for the whole industry and that is to devote its complete efforts in behalf of supplying war needs. After that can come the conversion of war-time developments to civilian uses.

IMPROPERLY washed dishes and silverware in public eating and drinking places come more to be suspected of responsibility for transmission of common colds and other respiratory infections as time goes on, if we may judge by comments in the news. The demand that dishes, and more particularly glasses, and silverware, be washed clean *and sterilized* by chemical or other method before re-use is growing, probably as a result of widespread observations of gross carelessness arising out of war-time labor shortages. The spotlight is being focused on this problem with increasing intensity. With the end of the war, or even before, the light is liable to be replaced by heat, — heat applied to the operators of hotels, restaurants, and institutions by local health authorities. An increased impetus to scientific dishwashing methods and to the use of equipment and detergents best suited to this purpose is apparent. But only the compulsion of law or health regulation can make such practice universal. With all its faults, mandatory chemical sterilization of dishes and eating utensils appears to be the nearest approach to a solution.

DDT louse powder does not kill the lice fast enough. This information has been seeping out the back doors of some Washington bureaus for the past several months, but lacking the customary glamour needed for DDT stories, no publicity releases to this effect have been noted in the daily or other press. Under the circumstances, it would not seem politic to release such information at this time, especially in the light of previous "news" stories.

The fact remains that not only are means being sought to speed up the action of DDT, but also to allay the skin itch caused by DDT louse powders. Large rush orders for benzocaine, a local anaesthetic, have been placed and a goodly percentage is now being incorporated in the new DDT louse powder. But solution to the problem of a faster kill is more elusive. Likewise, report in Washington has it that the Commissioner of Entomological Research, a branch of the Office of Scientific Research and Development, is currently trying to find out why in the light of large expenditures greater progress has not been made in DDT research. All of which adds further confusion to an already confused situation. Is it a case of politicians infiltrating government departments and giving the scientists the bums' rush, or has the idol feet of clay?

N. A. I. D. M. MEETS, RE-ELECTS NELSON

A REVIEW of the current supply situation on insecticide raw materials, discussion of war-time and post-war uses of DDT together with observations on its toxicity, and a discussion of proposed revision of the Insecticide Act of 1910, were among the principal topics discussed at the 31st annual meeting of the National Association of Insecticide & Disinfectant Manufacturers, held at the Hotel Roosevelt, New York, December 4 and 5. Attendance at the two-day session reached the record level of over 500 including leading manufacturers of insecticides and disinfectants, as well as representatives from the Armed Forces and from numerous governmental agencies.

At the annual election of officers which was held on the closing day of the meeting, Henry A. Nelson of Chemical Supply Co., Cleveland, was re-elected president of the association for the coming year. N. J. Gothard of Sinclair Refining Co., East Chicago, Ind., was re-elected first vice-president, G. M. Baird, Baird & McGuire, Inc., Holbrook, Mass., 2nd vice-president, John Powell, John Powell & Co., treasurer, and H. W. Hamilton, Koppers Co., White Tar Division, Kearny, N. J., secretary, all re-elected. Three new members were elected to the board of directors: H. W. Moburg, Rex Research Corp., Toledo, R. H. Young, Davies-Young Soap Co., Dayton, and James McConnon, McConnon & Co., Winona, Minn. They succeed the following retiring members: C. W. Furst, Furst-McNess Co., Freeport, Ill., C. L. Weirich, C. B. Dolge Co., Westport, Conn., and W. J. Zick, Stanco, Inc., New York. Other members of the board were re-elected.

The opening session, Monday morning, December 4, was taken up largely with the reports of the president and secretary, both of which appeared in full in the December issue of *Soap and Sanitary Chemicals*, and with several committee reports. Also at this session M. H. Solworth, sanitation consultant, Joseph E. Seagram & Sons, spoke on "Changing Concepts of Sanitation Within Industry."

DDT was the opening topic at the Monday afternoon session. J. A. Jenneman of the Grasselli Chemicals Department of E. I. Du Pont De Nemours & Co. pointed out that while DDT is doing a remarkable job in numerous military applications, there is much testing still to be done before it can properly be offered for civilian use. He reminded his listeners that DDT is never used in its pure state and that it is made up for use by the Armed Forces in six different compounds. DDT compounded with other materials into dusts, solutions, suspensions, emulsions, aerosol mists and paste are all possible mediums of consumer use in the post-war period, he observed. The full text of his paper will appear in the February issue of *Soap and Sanitary Chemicals*. "Toxicology of DDT," a paper by Dr. Paul A. Neal, U. S. Public Health Service, appears in full elsewhere in this current issue.

In his paper, "ABCs in the Formulation of Phenolic Disinfectants," Dr. Paul A. Wolf of the Dow Chemical Co. discussed a number of the factors which affect the germicidal efficiency of a disinfectant. The conditions under which a product is to be used are particularly important, he pointed out, as is the manner of formulation to obtain maximum germicidal value. He stressed the importance of attention to factors other than low cost, and observed that the production of a successful disinfectant is something more than merely mixing a germicide, a soap and other ingredients in cook-book fashion.

The Tuesday morning session, December 5th, was given over to reports of government representatives. John A. Rodda and Melvin Goldberg of the Insecticide & Fungicide Unit, Chemicals Bureau, War Production Board, reviewed the supply situation on pyrethrum, rotenone, arsenicals, DDT, etc. Hope was expressed on pyrethrum that additional arrivals of better quality flowers may be expected over the next few months, and there may be some prospect of release of pyrethrum for civilian and agricultural use early in 1945. As for rotenone, not too much improvement may be anticipated, Mr. Rodda stated. The United States is currently importing only half the quantity of rotenone-bearing roots which came in before the war, and this reduced quantity must accommodate the needs of the United Kingdom and Canada as well as the United States. The supply situation on arsenicals has improved quite markedly, it was indicated, but on DDT there seems to be no prospect, at least for the first four months of 1945, that any substantial quantities can be diverted from military needs.

On pine oil, Dexter L. Lewis, chief of the Naval Stores Unit of the

NAIDM JUNE MEETING OFF

Plans for the meeting of the National Association of Insecticide & Disinfectant Manufacturers scheduled for June 4 and 5 at the Coronado Hotel, St. Louis have been cancelled in view of the recent "request" by James F. Byrnes, WMR director. A meeting of the Board of Governors will probably be held in place of the association meeting.

Above: The Board of Governors of the N.A.I.D.M. pictured by Charles Opitz of John Opitz, Inc. as they met preceding the 31st annual meeting. Below: Military guests at the annual dinner included Lt. General George Grunert and Brig. Gen. Joseph F. Battley.

War Production Board, reported that applications are currently being received at the rate of approximately a million gallons a month, which is over twice the production rate. He added that disinfectant manufacturers request supplies at the rate of 59 per cent of production, and are being given material at the rate of 23 per cent of production. A project has recently been approved by WPB, he added, which would increase output of pine oil by approximately 20 per cent, but it may be as long as six to nine months before this increased output can be obtained. After victory is achieved in Europe, he indicated that a further 10 per cent increase in pine oil production might be anticipated. Meanwhile, supplies can be expected to continue very short.

L. A. Schlueter, chief of the Aromatics and Intermediates Branch, Chemicals Bureau of the WPB, said that all domestic cresol is required for military purposes, and that this situation will probably continue until after both the European and Japanese wars are over. When conditions permit, small quantities of imported cresol are being allocated for disinfectant manufacture. Much the same situation applies on cresylic acid, he indicated. A much better supply situation has obtained on tar acid oil, he said, and quantities available for disinfectant manufacturers have been sufficient to take care of all essential needs.

On containers, H. Lewis Hunter, chief of the Containers Section, Forest Products Division, Office of Civilian Requirements, reported that the steel situation has eased considerably. He expressed the belief that, beginning the first of the year, there will be adequate steel for all types of containers. The tin situation, he warned, is still critical, as is the supply outlook on paper and paperboard containers. The shortage of paper containers, he warned, may continue to be a serious supply problem for some time after the end of the war.

Returning to the subject of DDT, George W. Fiero, chief of the Pharmaceutical, Insecticide and Cosmetic Chemicals Unit of the Chemicals, Drugs and Health Supplies Division of the OCR, reviewed the successful use of DDT by the Army in terminating a threatened typhus epidemic in Naples last year. DDT production, he reported, has reached a rate of over two million pounds per month. In discussing possible post-war civilian uses for DDT he indicated that it will be used by the U. S. Public Health Service for malaria control, that it may have an application in the mothproofing of clothes, it may replace rotenone for flea and tick control on dogs, and it may become an important constituent of insecticide sprays for fly and mosquito control.

Brig. Gen. Joseph F. Battley, U. S. Army, was a special guest speaker at the Tuesday morning session. Gen. Battley is well known to the group through his contact with the Insecticide and Disinfectant Manufacturers' Advisory Committee during NRA days. He spoke of the problem of caring for the men in the service and of rehabilitating and reemploying them when they have finished their job and are ready to be discharged, asking for an intelligent and sympathetic handling of the many problems involved so that the necessary readjustments will proceed as expeditiously as possible.

The closing session, Tuesday afternoon, December 5, was addressed by Major George Fielding Eliot, military commentator and analyst, who reviewed the progress of the war in its various theatres.

Dr. C. C. McDonnell, chief, Insecticides Division, Livestock &

(Turn To Page 96)

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Meats Branch, War Food Administration, also spoke at this session on the proposed revision of the Insecticide Act of 1910, and in the course of his remarks answered a series of questions regarding the proposed revision which had been framed by the Legislative Committee of the N.A.I.D.M. The full text of Dr. McDonnell's talk and his answers to these questions will be found elsewhere in this issue.

The address of Dr. W. E. Dove, Bureau of Entomology & Plant Quarantine, Agricultural Research Administration, on "Insect Repellents" will also be found in the following pages, as will the report of Dr. E. G. Klarmann, Lehn & Fink Products Corp., on "Synthetic and Semi-Synthetic Nutrient Media for Use in Testing Disinfectants and Antiseptics."

Necessarily reserved for future issues will be the report of the Sanitary Specialties Marketing Committee, by Leonard B. Schwarcz, Ampion Corp.; the report of the Disinfectant Scientific Committee by C. L. Weirich of C. B. Dolge Co.; the report of the Sanitary Specialties Scientific Committee by A. C. Pabst of Socony-Vacuum Oil Co.; an address "Packaging—a Stepchild of Advertising" by Donald Deskey of Donald Deskey Associates; "Research on Walkway Surfaces" by J. A. Dickinson, National Bureau of Standards, and other papers and reports from the meeting.

Frank C. Nelson, of Stanco, Inc., New York, in his report for the Insecticide Scientific Committee, reported that because a number of irregular results have been reported in Peet-Grady tests an attempt will be made to buy a premixed alfalfa mixture for use as a culture medium. The committee will circularize the industry asking companies to specify the mixtures which they use. Mr. Nelson said there was nothing further to report on cattle sprays, since that work had been brought up to date at the Cleveland meeting. The liquid spray testing method will shortly be turned over to the membership. The roach powder testing method work has been static since the committee has been concentrating on a liquid testing method, although the powder testing method will be written up shortly, the speaker added. A problem currently facing the committee is the cleaning up of testing rooms where work on DDT has been done, Mr. Nelson reported. Due to the residual toxicity of DDT the results of later testing in the same rooms of another insecticide may not be accurate. He recommended xylene for cleaning up after testing DDT, but suggested as an alternative the setting aside of one or two rooms just for testing DDT. Studies of moth testing methods are continuing actively, and the committee is attempting to get such groups as pest control operators to use uniform testing methods.

As chairman of the Special Sprayer Committee, Mr. Nelson told of the Cleveland meeting in October to set up sprayer specifications. The "ten cent sprayer is no good," Mr. Nelson said, and added that it is up to the specialty salesmen to educate the field to this effect. He then went on

(*Turn to Page* 133)

REGISTRATION LIST

The official registration list for the 31st annual meeting of the National Association of Insecticide & Disinfectant Manufacturers will be published in our February issue. Space limitations make it impossible to print it in the current issue.

OVER THE TRANSOM

by Preston Peaker

NEW YORK CITY was definitely the insecticide nerve center last month, with members of the National Association of Insecticide & Disinfectant Manufacturers meeting at the Hotel Roosevelt, December 4, 5 and 6, and a joint session of the Entomological Society of America and the American Association of Economic Entomologists being held at the Hotel New Yorker, December 13, 14 and 15. Local pest control operators report a substantial drop in the insect population from the mere verbal effect of the thousands of paragraphs spouted on DDT during the course of the three meetings.

* * *

One of the best questions asked yet on DDT is "What is going to happen to the Peet-Grady test results of some unfortunate testing laboratory the first time someone slips a DDT-containing spray into the test line?" Until the technicians wise up, the residual toxicity of the DDT should give every following test batch of insecticide a remarkably high kill. One investigator reports that a 5% dilution of DDT in oil sprayed on the screens of a cage was strong enough 64 days later to kill within 99 minutes a batch of test flies introduced into the cage.

* * *

DDT was described at the entomological meeting by C. H. Hadley of the U. S. Bureau of Entomology and Plant Quarantine as the best thing encountered yet for the control and repellence of Jap beetles. However, no recommendations are being made yet as to use because of possible complications which have not yet been thoroughly investigated. The Bureau is still worried, apparently, about possible danger of soil contamination, the impartation of toxicity to sprayed plants, the killing of bees, birds, etc.

* * *

The outlook seems to be currently favorable for release of some low-test pyrethrum,—part of the Brazilian crop,—for agricultural and civilian use. The probable split is set at 75 per cent for agriculture and the remaining 25 per cent for civilian use. Even though the flowers are low test, it goes without saying that the recipients would be delighted. It has been a long time since they have had even any low-test pyrethrum. The hitch in the present prospect is that it is contingent upon the desire of the military to assure an adequate supply of pyrethrum during those months when receipts are normally small and consideration must also be given to the non-desirability of storing the flowers for too long a time.

* * *

The rotenone outlook is said to be definitely better for 1945, but little can be said yet as to the exact balance of supply and demand. Uncertainty of arrival of material now en route, change in weight, variable toxicity, etc., all make it difficult to predict accurately how much more we will have to work with in the way of rotenone supplies over the coming year.

* * *

Nor can the quantity of DDT which it may be possible to release for larger scale civilian experimental work during 1945 be predicted accurately as yet. On the basis of latest reports it would seem that no real change in the supply situation on DDT can be expected for at least the first three months of 1945.

* * *

Insecticide manufacturers may anticipate an easier situation on metal containers for the coming season, we are told. M-81 has just been liberalized, and the prospect is that insecticide manufacturers will get unlimited status on black plate, and improved quotas on electrolytic tin as well. One problem which the insecticides division of WPB has had in getting a better deal for the industry on containers has been the reluctance of insecticide manufacturers to supply figures on their actual needs.

* * *

The following poetic gem was contributed by Prez. Henry Nelson to liven up a session of the N.A.I.D.M.

If a man who makes rugs is a rugger
And a man who hugs girls is a hugger
Is a man who encroaches
On bedbugs and roaches
Like Doc Weed of John Powell a "bugger"?

If a movie theater is a "mug" house
And a place selling rugs is a rug house
We're quite satisfied
That it can't be denied
Doc Weed is running a bug house.

* * *

The ranks of the NAIDM old guard thin out more and more each year. Fred Hoyt, one of the founders and a former president, reported this year by mail. Having given up his interest in Frederick Disinfectant Co. of Atlanta several years back, he is no longer actively identified with the insecticide and disinfectant industry. He still retains an extremely active interest in the doings of the association, however, and asked to be remembered to his many friends. He reports that he is currently busy directing the activities of one of Atlanta's OPA Price and Rationing Boards.

* * *

The price of DDT has again been reduced,—this time to 60c per pound. Cost to the government on early lots was $1.60 per pound, this figure being later reduced to $1.00 per pound. Effective January 1, 1945, du Pont announced a new price of 60c. The company also reports that its plant at Grasselli, N. J., is turning out DDT at a rate two and a half times original planned capacity. Process improvements combined with the production increase are said to be responsible for the price reduction.

* * *

The term, "Pine Oil Disinfectant," will not be used in the new National Formulary now in process of compilation. This term proposed as a synonym for "Pine Oil Emulsion Concentrate, N.F." would cause considerable embarrassment to disinfectant manufacturers and distributors if included in the Formulary, even to restricting the sale of pine oil disinfectants for industiral uses to drug stores in some states. The idea of including "Pine Oil Disinfectant" is reported to have been abandoned by the compilation committee.

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DDT TOXICITY...

A Report on the Toxicity to Warm-Blooded Animals of Aerosols, Mists and Dusting Powders Containing DDT

*By Dr. Paul A. Neal**

Senior Surgeon, Ind. Hygiene Research Lab., National Institute of Health

THE following studies of the toxicity of DDT to man and warm-blooded animals when used as an aerosol, dusting powder, and as a spray in "Deobase" were undertaken at the request of the Surgeon General's Office of the U. S. Army, and the Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture. The materials used in this study were prepared and supplied by the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture.

The primary objective of our investigations was the appraisal of the health hazards connected with the use of DDT as an aerosol, mist, spray and dusting powder, supplementing the work of Dr. H. O. Calvery, Food and Drug Administration; Dr. M. I. Smith, Division of Physiology, National Institute of Health; and Dr. Robert Kehoe, Kettering Laboratory, University of Cincinnati. Exposure to DDT when so used is principally by inhalation. In all inhalation exposures there is also some ingestion, and skin contact. The following factors are of importance in any inhalation exposure:

1. The particle size.
2. The concentration of the toxic agent in the air.
3. The duration of exposure.

Other important factors are solubility, agglutination, and settling rate.

*Address before 31st Annual Meeting, Nat'l Assn. of Insecticide and Disinfectant Mfrs., New York, Dec., 1944.

In the appraisal of the hazards in such preparations, not only the DDT agent itself, but also other constituents of such mixtures (solvents and propellents) have to be considered.

The Bureau of Entomology and Plant Quarantine informed us that with the aerosols studied the concentration of DDT sufficient for insecticidal purposes was 150 milligrams per 1,000 cubic feet or 0.005 milligrams per liter.

Aerosols

The first aerosol studied contained 1 per cent DDT with sesame oil. Exposure of dogs, rats, and guinea pigs to initial concentrations of 54.4, 12.44, and 6.22 mg. of DDT per liter of air, over a period of 45 minutes, in a static atmosphere, does not cause toxic signs or symptoms. Mice tolerate concentrations of 6.22 mg. of DDT per liter of air without manifesting toxic symptoms only if the aerosol used contains 6 per cent sesame oil. If, however, the concentration of sesame oil is increased to 9.5 per cent, toxic effects become apparent. Higher concentrations than 6.22 mg. DDT per liter of air result, a few hours after the exposure, in increased excitability, nervousness, tremors, and finally, before death, in clonic convulsions. It has been demonstrated that this toxic action observed in mice is not due to inhalation of DDT but is caused by the contamination of the fur with this material, and that it is partly ingested by licking the fur and, possibly, partly absorbed through the skin. Evidence presented indicates that the toxicity of DDT for mice is increased by increasing the percentage of sesame oil, partly because the contamination of the fur is more marked and, possibly, partly because of an increased toxicity of DDT in the presence of the oil when the solution of DDT in oil is ingested as by licking the fur. The livers, kidneys, spleens, and spinal cords of mice showing distinct signs of DDT poisoning showed significant pathological changes.

The next aerosol studied contained 5 per cent DDT in cyclohexanone. Daily exposure of monkeys and mice for 45 minutes, over a period of 5 weeks, to an intermittent concentration of 0.183 mg. of DDT per liter of air, prepared by dispersion of 1.5 gm. of this aerosol every 15 minutes, caused no toxic effects. This is about 36 times the concentration necessary for insecticidal purposes.

If this type of exposure was repeated 3 times daily, for 4 weeks, monkeys showed no toxic effects whereas mice showed definite signs of DDT poisoning.

Exposure of 2 human subjects to a dispersion of DDT in air, prepared by dispensing, every 15 minutes, 10.4 gm. of an aerosol containing 5 per cent DDT, 10 per cent cyclohexanone, and 85 per cent "Freon" into a sealed chamber of 14,750 liters capacity, for 1 hour daily, on 6 consecutive days, failed to show any subjective or objective manifestations referable to DDT.

Dispersion of 10.4 gm. of DDT aerosol of the same composition, every 5 minutes, for 1 hour daily, on 5 consecutive days, also did not cause any subjective or objective toxic effects referable to DDT in the same subjects.

The next aerosol studied contained 3 per cent DDT in cyclohexanone and lubricating oil. The experiments performed with this aerosol illustrate the same difference in the susceptibility of different animal species to DDT as pointed out previously. The present studies show again that mice are more susceptible than rats and that guinea pigs, dogs, and monkeys are much more resistant. In addition, it has been shown that, at least in the case of mice and rats, young animals are less resistant than mature ones, because it was found that single exposures for 45 minutes to initial concentrations of 26.4 to 32.9 mg. per liter of DDT are fatal to over 50 per cent of immature mice, about 15 per cent of adult mice, and about 15 per cent of immature rats, but not to adult rats or adult guinea pigs.

It was shown further that repeated, single, daily, massive exposures of dogs for 45 minutes to dispersions of this aerosol prepared by discharging 450.2 gm. of the aerosol (corresponding to 33 mg. per liter of DDT) into a chamber of 409.7 liter capacity causes, over a period of 8 weeks, no toxic effects other than a moderate irritation and narcotic action resulting from cyclohexanone. Similarly, monkeys exposed for 45 minutes daily to single, initial concentrations of 33.3 mg. per liter over a period of 27 weeks and longer failed to show definite nervous symptoms characteristic for DDT or signs of an injurious effect on the liver as might be indicated by an increase of the icterus index and the prothrombin time.

It is impossible to build up much higher concentrations of DDT in air by repeated dispersion of this aerosol, even if this is done at intervals of 5 minutes, because DDT settles out so rapidly, especially if the air is agitated, without forming a dust, and because it sticks firmly to any surface with which it may come in contact.

It should be pointed out that for entomological purposes the initial concentration of DDT in air is of the order of 100 to 200 mg. per 1000 cubic feet, corresponding to about 0.004 to 0.007 mg. per liter. In the inhalation experiments reported above the initial concentration of DDT ranged from about 19 to 33 mg. per liter, or about 3000 to 4500 times the desired entomological concentration. It is evident therefore that the desired entomological concentration offers no health hazard.

Mist

Rabbits exposed for 48 minutes daily to a heavy mist of a 1 per cent DDT-Deobase mixture, over a period of 4 weeks, developed no signs of DDT poisoning but suffered irritation of the mucous membranes of the eyes, the upper respiratory tract, and the skin which was caused by the solvent.

Dust

Daily exposure for 3 hours, over a period of 4 weeks, to concentrations of 12.48 mg. of DDT dust per cubic meter of air, using a 10 per cent DDT-"Pyrax" dust, caused no toxic effects in dogs. Mice exposed in the same way to concentrations of 13.9 mg. of DDT per cubic meter of air showed toxic effects which, however, may have been due mostly to the ingestion of the toxic material.

Daily insufflation of 100 mg. per kilo of pure DDT in dogs caused, in 1 out of 3 animals, definite signs of DDT poisoning after a period of 18 days, characterized by a primary injury of the liver and kidneys and subsequent nervous manifestations resulting in tremors.

Skin

The residue of the above aerosol, containing all the constituents of the mixture except "Freon," is readily absorbed through the skin of mice, and single doses of 0.1 cc. applied to the skin are fatal to the majority of animals. With repeated cutaneous application of 0.012 cc. of the aerosol mixture (containing about 2 mg. of DDT) definite toxic symptoms and evidence of a cumulative action were observed in mice over a period of 1 to 3 weeks.

On the other hand, dogs stood application of 1 cc. per kg. of the residue from the aerosol for many weeks. One animal showed the first toxic symptoms after 7 weeks and died after 12 weeks; the second showed the first toxic manifestations after 12 weeks and died after 17 weeks; the third showed mild toxic symptoms after 12 weeks but survived for 18 weeks; and the fourth showed, temporarily, slight toxic effects and was killed after 21 weeks of exposure. In contrast to the observations with mice, these dogs did not develop convulsions but died in severe depression.

Pathology

The principal histopathological findings in animals exposed to high concentrations of DDT are moderate subacute degeneration of the liver. Histopathological changes in the brain and spinal column of animals dying with typical DDT tremors are very slight. In fact sufficient pathological changes have not been found in any organs to account for the death of the animals.

Examination of 7 Individuals

In August, 1944, a thorough clinical and laboratory study was made on three men who had each had several months of continuous occupational exposure to DDT when used as a mist and dusting powder. The exposure of two of these individuals to DDT was extremely great—more so than necessary for the work they were doing—during the three and one-half months from October, 1943 to the middle of January, 1944. The third individual whose exposure had been somewhat less than the other two individuals had had constant exposure for the nine months prior to the time of the examination. The results of the clinical and laboratory examinations of these three men can be summarized in the statement that after carefully evaluating all the evidence accumulated from the examination of each case we were led to the conclusion that none of them presented definite findings that can be attributed to the toxic action of DDT.

In September, 1944, four individuals were studied thoroughly, using clinical and laboratory methods both before and after they were subjected to exposure to DDT in the course of

experimental field tests of a recently designed DDT aerosol smoke generator. An evaluation of the findings revealed no definite evidence of DDT toxicity in these individuals.

In cooperation with the Army, Navy, Bureau of Entomology and Plant Quarantine, and the principal manufacturers of DDT, the Public Health Service is attempting to appraise the effect of various DDT mixtures on the health of individuals engaged in work exposing them to DDT. So far no report of ill effects in humans from DDT has been discovered. Several reports have been brought to our attention in which a diagnosis of DDT poisoning had been made. These reports were followed up and in every case DDT was not the causative factor. In several cases the solvent for DDT was found to cause irritation of the eyes and upper respiratory tract, as well as such symptoms as headache, nausea, tingling sensations of the lips and face, nervousness, or jittery feeling, listlessness and loss of equilibrium. The inhalation of heavy concentrations of vapors or very fine mists of kerosene or of cyclohexanone will cause such symptoms. Therefore, it should be pointed out that attention should be given to the toxicity and potential dangers of the solvents used in the DDT mixtures. The chlorinated hydrocarbons, with the possible exception of methylene dichloride and trichlorethylene, should not be used as solvents for DDT. This is especially true for the chlorinated hydrocarbons that cause liver injury, since DDT also causes injury to the liver. In my opinion tetrachloroethane should under no circumstances be used.

In the manufacturing processes of DDT and its products where workers will be potentially exposed to DDT daily for a period of years, the following precautionary measures should be observed:

(1) The operation should be isolated as far as possible.

(2) Concentrations of DDT dust in the air should be reduced to a minimum by the use of enclosed processes and proper exhaust ventilation.

(3) Adequate personal hygiene and cleanliness of the operation should be observed. Smoking, chewing tobacco and intake of food in the workroom should be forbidden because of the potential danger from the ingestion of DDT. Dry DDT powder can be removed from the skin by washing with hot water, soap and brush. When the clothing is soiled with DDT solution, the clothing should be removed and laundered.

MORE ABOUT DDT

"DDT Up-to-Date," a paper by J. A. Jeneman of Grasselli Chemicals Dept., E. I. du Pont de Nemours & Co., Wilmington, delivered at the 31st annual meeting of the N.A.I.D.M., will appear in our February issue. Space limitations caused by the paper shortage make it necessary to postpone this and numerous other official convention papers and reports until subsequent issues.

(4) The wearing of respirators or personal protective devices should only be resorted to if it is technically impossible to reduce the dust hazard by adequate ventilation. With regard to the mixing of DDT with an inert dust, personnel engaged in mixing dust should wear a respirator or moist cloth over the nose and mouth during the mixing process.

(5) One of the chief occupational hazards in connection with DDT is in the mixing of DDT with oil solutions or other non-volatile solvents. The greatest care should be taken to hold to a minimum the contact of the skin with the basic DDT oil mixture since DDT in non-volatile solvents is absorbed through the skin. Occasional contact is apparently not dangerous; *repeated or prolonged* contact should be avoided.

(6) DDT is tasteless and bears a physical resemblance to flour; therefore, it must not be stored alongside food supplies.

Summary

In spite of the inherent toxicity of DDT, its use in a 1 to 5 per cent solution in 10 per cent Cyclohexanone with 89 to 85 per cent "Freon" as areosol should offer no serious health hazards when used under conditions such as are required for its use as an insecticide. It should be pointed out that solution of DDT in fatty oils increases its toxicity, and that the results obtained by using a solution in cyclohexanone are not necessarily comparable to the effects produced by a solution in oil.

The use of DDT in concentrations up to 10 per cent in inert powders for dusting clothes, as in the extermination of lice, appears to offer no serious hazards because of the relative insolubility of DDT and the large particle size of the dust. Therefore, it does not reach the alveolar spaces. A large proportion of the dust is retained in the uppermost sections of the respiratory tract. The remainder is swallowed. On account of its relative insolubility it is thought that only a small fraction is absorbed.

The use of a 1 per cent DDT-"Deobase" mixture was found to be non-toxic to rabbits with heavy exposure for 48 minutes daily, over a period of 4 weeks. It is believed that its use as a fly spray, which involves only temporary and comparatively moderate exposure to much lower concentrations, should be safe. However, due to the fat-solvent properties of most petroleum distillates, irritation of the skin may occur following heavy exposure.

Although this study deals only with the appraisal of the potential dangers of DDT when inhaled as aerosol, dust, and mist, it should be pointed out that ingestion of massive doses of DDT will be toxic. It should, therefore, only be used under conditions which exclude the heavy contamination of food.

These experiments show also that the contamination of the skin from such residues as produced by the desired insecticidal concentration of DDT in air is of such low order that it will not cause injurious effects to humans. It should, however, be pointed out that the handling of DDT residues, as in the filling of the aerosol bombs, if not done carefully, may result in such severe contamination of the skin, especially with repeated exposure, that toxic effects might occur in humans.

(*Turn to Page* 111)

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NEW INSECTICIDE ACT

A Discussion of Proposed Revision of The Insecticide Act of 1910 . . . Together With Answers To Questions From The Industry

*By Dr. C. C. McDonnell**

Chief, Insecticide Division WFA,
U. S. Dept. of Agriculture

WITH reference to this proposed new Insecticide Act, I want to make it clear that steps to revise the present law did not originate in the Department of Agriculture. I do not mean to say that we who have been delegated to administer the Act of 1910 feel that it is perfect but, on the contrary, we recognize, as do those engaged in the industry, that some revision is desirable to bring it up to date and make it more applicable to conditions now existing. Industry has suggested that some action be taken to revise the present law and we are glad to cooperate with it and others who feel that such revision is desirable at this time.

There is little resemblance between the insecticide and fungicide industry as it existed at the time of the enactment of the present law by Congress in 1910 and that of today. Not only has it grown tremendously in volume and number of people engaged in it but there have been great developments in the types and quality of products on the market and in the methods of their use during the years that this act has been in force. We feel sure that the growth of the industry has been due, in considerable part at least, to the control exercised over it through the enforcement of this act, which has resulted in the marketing of higher quality products and to more truthful labeling, thus instilling greater confidence in the user of the products he buys.

Action to revise the present law was started about ten years ago by this Association (N.A.I.D.M.) and a proposed amendment to the Insecticide Act of 1910 was agreed upon and presented to Congress at that time. But it was just at the time when the new Food, Drug, and Cosmetic Act was before Congress and the Food and Drug Administration thought it advisable to postpone consideration of amending the Insecticide Act until the legislation pertaining to foods and drugs was out of the way. As a consequence no further steps were taken to enact this legislation.

The draft of a proposed revision of the Insecticide Act that we are discussing today has not been officially approved by the Department of Agriculture and does not necessarily represent the Department's official judgment on revision. It is intended as a basis of discussion with a view to obtaining the opinion of all interested parties in order to present, if possible, a united front of endorsement. It is to be expected that there will be differences of opinion but it is hoped that they can be reconciled. Naturally we will not agree to any change that will weaken the present law or make it less embracive. We do not fear any such action insofar as this Association is concerned since no suggestion has ever been made or action taken by it that would indicate any desire to weaken the present law. On the other hand, such recommendations as have been made were of the nature of making it stronger.

I shall not read the entire proposed Act but refer only to the changes from the present law. It is made up of 10 sections instead of 14 as in the present law. At the urgent request of the Fish and Wildlife Service of the Department of the Interior it has been broadened to include rodenticides, and also certain other products and devices intended for destroying or trapping insects and rodents. This makes it necessary to introduce new terms and definitions to include products and devices which are not included in the term "insecticide." The terms "economic poison" and "device" are being used, and are defined as follows in Section 1.

> **(a) The term "economic poison" shall include any substance or mixture of substances intended for use in preventing, destroying, repelling, or mitigating any and all insects, rodents, fungi (including bacteria), and other forms of plant or animal life which the Secretary of Agriculture shall declare to be a pest, or intended for such use after mixing with any other substance.**

This, as you will observe, includes products included under the term "insecticide" in the present law and, in addition, products for the control of rodents and other forms of plant and animal life which the Secre-

*Address before 31st Annual Meeting, Nat'l Assn. of Insecticide and Disinfectant Mfrs., New York, Dec., 1944.

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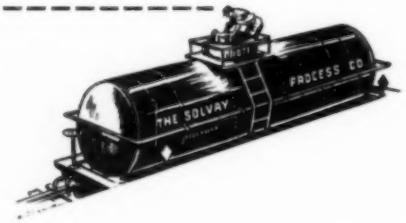

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tary of Agriculture shall declare to be a pest. This would embrace preparations for destroying such things as hawks, crows, coyotes (which are not rodents), snails, slugs, nemas, earthworms, and others that might be named.

(b) The term "device" shall include any instrument or contrivance intended for trapping, destroying, or repelling insects, or destroying fungi or other pests designated by the Secretary of Agriculture; except rodent traps.

This would include such things as traps for the Japanese beetle and other insects, infra-red lamps for killing fleas and other insects on animals, and other forms of devices.

(d) The term "insecticide" means any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any insects which may be present in any environment whatsoever, or intended for such use after mixing with any other substance.

The definition of "insecticide" is slightly changed so as to make it definite that concentrates,—products that may go to a manufacturer or user for further dilution,—are included under the terms of the act.

(e) The term "fungicide" means any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any fungi which may be present in any environment whatsoever on or in living man or other animals, or intended for such use after mixing with any other substance.

The term "fungicide" is defined as in the present law, with the exception that products for such use on or in the bodies of living man or other animals are excluded from the provisions of the act (such products are handled by the Food and Drug Administration under the Food, Drug, and Cosmetic Act.)

(i) The term "label" means the written, printed, or graphic matter on the immediate container of the article or on the article itself and also on the outside container or wrapper, if any there be, of the retail package of such article.

The term "label" is defined to indicate specifically what it embraces. Actually there is no change from the way the present law is being enforced.

(j) The term "labeling" means all labels and other written, printed, or graphic matter (1) upon any article or any of its containers or wrappers, (2) accompanying such article, (3) to which reference is made on the label or literature accompanying such article, or (4) which relates or refers to the article for the purpose of inducing the sale thereof.

As you will note, this is designed to take in certain advertising matter, such as circulars, that may be issued pertaining to the article to which it refers. It is an important and valuable provision for effective supervision over products covered by the law.

(k) The term "adulterated" is defined as applying to any economic poison if its strength or purity falls below the professed standard or quality under which it is sold; if any substance has been substituted wholly or in part for the article, or if any valuable constituent of the article has been wholly or in part abstracted; in the case of an insecticide or fungicide, if it is intended for use on vegetation or animals and shall contain any substance or substances which, although preventing, destroying, repelling, or mitigating insects or fungi, shall be injurious to such vegetation or animals when used as directed; and, in the case of a rodenticide if its strength is less than the minimum standard set by regulation promulgated by the Secretary of Agriculture.

This differs from the present act in that it is more specific and also provides that a product intended for use on animals is adulterated if it is injurious to the animals when used as directed. (This provision in the present law is limited to injury to vegetation.)

(l) The misbranding provision is broadened to require that adequate directions for use be given on the labeling and it is also more specific regarding the placing of the ingredient statement.

Section 2

THIS section covers prohibited acts and requirements relative to registration, coloring and labeling. It contains several provisions that differ from the present law, the essential ones being (1) that the shipment of an unregistered product is prohibited and (2) products shipped must be in the registrant's or manufacturer's original unbroken container or package to which is affixed a label bearing the name of the manufacturer, registrant, or person for whom manufactured, the name, brand, or trade-mark under which said article is sold, and the net weight or measure of the content.

Paragraph "c" of this section provides for poison labeling on products containing any arsenical compound or any compound of fluorine "or any other substance or substances determined by the Secretary of Agriculture to be highly toxic to man."

Paragraph "d" provides for the coloring of white powder economic poison containing arsenic or any of its compounds or any fluoride or mixture of fluorides unless they have been distinctly colored as provided by regulation, except that in case such coloration of a particular material is found unnecessary for the protection of the public health or is impractical, the material may be exempted from this requirement by the Secretary of Agriculture.

This section also contains the following provision:

"It shall also be unlawful for any person to use for his own advantage, or reveal, other than to the Secretary or officers or employees of the Department of Agriculture or to the courts, any information relative to formulas of products acquired by authority of section 3 of this act."

This is designed, as the wording indicates, to prevent any Federal official using any information obtained in the performance of his official duties for his own advantage or revealing such information to some other person.

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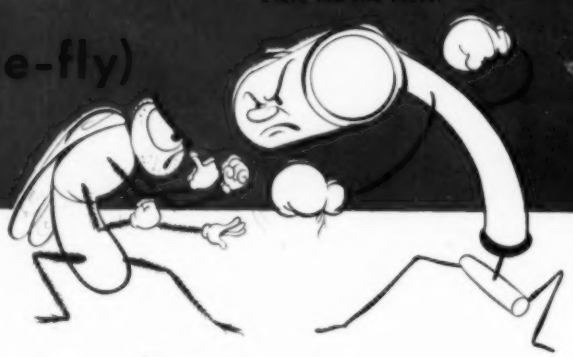

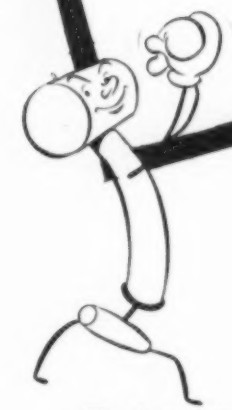

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NT-61

Section 3

SECTION 3 refers to registration and since it is new, I shall read the entire section:

"*Registration.* Every economic poison or device which is manufactured, sold, or offered for sale in any Territory or the District of Columbia, which is shipped or delivered for shipment from any State, Territory, or the District of Columbia to any other State, Territory, or the District of Columbia or to any foreign country, or which is received from any foreign country shall be registered each year by its manufacturer or distributor with the Secretary of Agriculture. The manufacturer or distributor shall file with the Secretary of Agriculture a statement of (1) his name and address; (2) the name of the economic poison or device; (3) the complete formula for the economic poison or a complete description of the device; (4) a complete copy of the labeling and a statement of the claims to be made for the article, including the directions for use; (5) and, in case the effectiveness of the article for the intended use is not generally recognized, a statement of the results of tests upon which he bases his claims. He shall also pay a fee of $..... for each article registered in each fiscal year. If it appears to the Secretary of Agriculture that the composition of the article is such as to warrant the proposed claims for it and if the article and its labeling comply with the requirements of section 2 of this act, he may register it. If the article and its labeling do not comply with these requirements, he shall refuse registry. The Secretary may, after hearing, cancel the registration of any economic poison or device which is found to differ in composition from the formula filed; to be ineffective for the purposes for which it is intended; to be injurious to vegetation or to man or other animals when used, or concerning which false or misleading statements, either written or verbal, are being made by the registrant or his agent."

This provision has been the subject of discussion by a number of groups, and several questions have been submitted by your legislative committee regarding it. I will therefore wait discussion of it until these questions are reached.

Section 4

SECTION 4 deals with enforcement and provides that "The Secretary of Agriculture (except as otherwise provided in this section) shall make general rules and regulations for carrying out the provisions of this act, including the collection and examination of samples of economic poisons and devices subject to it. The Secretary of Agriculture is, in addition, authorized after hearing (1) to declare a pest, any form of plant or animal life which is injurious to plants, man or domestic animals, (2) to determine substances other than arsenic and fluorides which are highly toxic to man when contained in economic poisons, (3) to determine standards of coloring for economic poisons subject to the requirements of Section 2(d) and to exempt from the requirements of Section 2(d), economic poisons, the coloration of which is shown to be unnecessary for the protection of the public health or is impractical, (4) to refuse or cancel registration of an economic poison or device, and (5) to prescribe minimum standards of strength and methods for testing the efficacy of rodenticides."

Section 6, Penalties—is the same as the present law except the penalty for a second offense would be a fine not more than $500 instead of $300, and a provision has been added as follows: "(b) Notwithstanding the provisions of subsection (a) of this section, in case any person uses or reveals with intent to defraud, information relative

Questions and Answers on New Insecticide Act

Questions by Members of the Legislative Committee of the National Association of Insecticide and Disinfectant Manufacturers Association, submitted by H. W. Hamilton, Ssecretary.

* * * * *

Answers by C. C. McDonnell, Chief, Insecticide Division, Livestock and Meats Branch, Office of Distribution, War Food Administration.

* * * * *

THE Legislative Committee of N.A.I.D.M. has submitted to Secretary Hamilton a number of questions pertaining to this proposed law, which I will try to answer.

Question 1—What will the new law be called?

Answer — The name "Federal Insecticide Act" has been proposed and is the name used as now written up. Several others have been considered, the ones most generally mentioned being "The Economic Poison Act" and "Federal Pesticide Act." Either of these names is applicable and might be used but there has been an Insecticide Act for so long that everyone is familiar with it, and since the proposed law is of the nature of a revision, with no radical changes other than the inclusion of several new types of products and the provision for registration, it is my feeling that it is preferable to retain the word "insecticide" in the name. It is true that it covers other things besides insecticides but so does the present law, and as long as its scope is made clear in the wording of the law itself, an all inclusive name does not seem material.

* * * * *

Question 2—Why is a revised law needed, and will it cover the same or a greater field than the present law?

Answer—As you all know, the Insecticide Act of 1910 has been in force for a long time—33 years. Great changes have taken place in the industry since that time and, naturally, this law is not adequate to cover present conditions. Long experience in its administration has also shown where changes and adjustments can be made that will provide a law that will perform a greater service to both users and manufacturers of insecticides and fungicides than is possible under the present law.

It is recognized that some regulatory control over other products besides insecticides and fungicides is essential. This is particularly true in the case of rodenticides, which has been pointed out many times by those in close contact with rodent control operations.

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to formulas of products acquired by authority of section 3 of this act, the penalty shall be imprisonment for not more than 3 years or a fine of not more than $10,000 or both such imprisonment and fine."

The remainder of the proposed act is essentially the same as the present law.

Several other provisions have been considered for inclusion, including a requirement that phenol coefficients of certain types of disinfectants be stated on the label, as has been suggested by your Association and which was included in the proposed law prepared a few years ago. This requirement was not included however, because there are many types of disinfectants on the market at the present time for which the present phenol coefficient method is not applicable, and some products to which it may be applied give results that are misleading. Furthermore, since the proposed law carries a provision requiring that adequate directions for the use of products subject to it be given on the labeling, it was considered that a phenol coefficient statement would have little or no value. However, it would not be prohibited under the proposed legislation and a manufacturer could put it on if he desired, provided it was correct and not misleading.

No standards of composition have been included since methods of manufacture and the character of materials available may make changes necessary from time to time and it is not considered advisable to set up standards in a law such as this.

Your organization itself started action 10 years ago toward a revision, and recently the agricultural insecticide group has made suggestions for bringing the law up to date. This tentative draft includes the ideas that have been suggested,—and does not at this time carry the endorsement of the Department of Agriculture.

* * * * *

Question 3—Why is it extended to include "advertising"?

Answer—There are several reasons for including in the law a provision covering advertising, such as circulars, pamphlets, etc. In the first place, the proposed law provides that the labeling shall bear adequate instructions for use of the product. In many cases the label on the package cannot be made large enough to carry such directions and they must be issued separate from the label itself. In order to exercise control over such directions and claims, the provisions of the law must extend to them. It is also designed to prevent exaggerated or unwarranted claims against which action cannot be taken under the present law. Furthermore, under the provisions of the proposed law, the manufacturer is required to submit copies of his labeling to the Department for approval and this would make it necessary that this printed material, as defined under "Labeling," be subject to the other provisions of the law.

It is true that the Federal Trade Commission is empowered to take action to prevent persons and corporations from using unfair methods of competition in commerce and unfair or deceptive acts or practices in commerce. Under the Federal Trade Commission Act as amended (approved March 21, 1938) the Commission is given very broad powers over advertising pertaining to products subject to the Food, Drug & Cosmetic Act, but in so far as other advertising is concerned I think it must show that an unfair trade practice is involved. In any event it would seem impossible for the Commission to actively cover all branches of advertising.

* * * * *

Question 4 — Is the unbroken package provision necessary?

Answer—I think it desirable that products be sold in their original package and carrying the labeling under which they were registered. This would assure the buyer that he was receiving the product as packed and not something that might have been tampered with or adulterated after shipment.

The so called model law prepared by the agricultural insecticide group carries this provision, as do a number of state laws. It is not a vital provision. I don't think we could prevent by federal legislation the sale from a broken package by a dealer in the states.

Registration—The section providing for registration has, as was to be expected, elicited a number of questions. Before taking these up, I shall make a general statement regarding this provision as I see it but in no wise committing the Department. I have for several years given much thought to the subject of registration, but have hesitated about suggesting legislation to provide for it on account of the work involved in carrying it out. The mere payment of a fee and listing of the name of a product with the Department would be valueless. On the other hand, registration, if properly carried out, has a number of advantages both to manufacturers and to consumers of the products subject to the law. As provided for under this amendment, manufacturers would be benefited by having their formulas and labels passed upon by experts of the Department before placing their products on the market and thus in many cases they would avoid being cited later for violation of the law and possible prosecution. The users of insecticides and fungicides would be benefited in that the marketing of worthless or ineffective products would be largely prevented and they would thus be saved from damage and loss through their use. Enforcing officials would be in a position to enforce the law more effectively by having at their fingertips a list of all products being manufactured and shipped in interstate commerce.

* * * * *

Taking up the questions as they were submitted:

Question 5—Is registration required. **Question 6**—Could registration be omitted?

Answer — These may be answered together. Registration would be required if this provision is enacted as written in the proposed law. The administrating officials would have no discretion in the matter.

* * * * *

Question 7—Why is registration necessary?

Answer—We have, of course, gotten along for many years without registration and it is not necessary in the sense that it is absolutely essential. It has a number of advantages, as I have already pointed out, and I do not believe that any very weighty reasons for opposing it can be advanced.

* * * * *

Question 8—Could registration be restricted to firms, not products?

Answer—It could not be so restricted under the section as now worded. As a matter of fact, registration of firms alone would be of little, if any, value from the angle of law enforcement.

* * * * *

Question 9—What fees are to be required for registration?

Answer—Those of us in the Department who have considered this have not decided upon any specific fee or fees that we thought would be just or proper. We should like to have the views of the industry upon it. It would be my personal opinion that a nominal fee be fixed for each product (brand) registered, regardless of the number of products a firm might register or the amount of the product sold. It should not be burdensome; yet, on the other hand, it should be sufficient to discourage registration of needless products. (In most States that require registration, the fee collected is applied toward the enforcement of the law. In the case of Federal laws, however, it is the practice to require that all fees revert to the Treasury as "miscellaneous receipts.")

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Question 10—Does registration indicate product approval?

Answer—It does not indicate approval of the product itself, nor does it indicate an endorsement of the claims. It does indicate acceptance of the claims but is subject to withdrawal at any time (after hearing) for cause.

* * * * *

Question 11—Does the law provide the privilege or rejection of registration? If so, on what ground?

Answer—Section 4 provides that the Secretary of Agriculture may refuse registration or cancel registration (the registrant must, however, be given a hearing). Registration may be refused if the registrant does not file the information called for in Section 3 or if, in the opinion of the Secretary of Agriculture, the statement of the results of tests upon which the registrant bases his claims is not conclusive. Registration may be canceled if the composition of the product is found to be different from the formula submitted at the time of registration; if it is found to be ineffective for the purposes for which it is intended; if it is found to be injurious to vegetation or to man or other animals when used as directed; or if it is found that the registrant or his agent is making false or misleading statements regarding the article.

* * * * *

Question 12—Does the law provide the privilege of exemption of registration? If exemption is permitted, then on what grounds?

Answer—The proposed law as written does not provide for any exemption privilege. However, I think it is something that might be considered. I can conceive of cases where it would appear that registration would be unnecessary—as, for example, in the case of small shipments made for experimental purposes or in the case of shipments from one factory branch to another for repacking or reprocessing before offering the material for sale. Such shipments should, of course, be on a pre-permit basis.

* * * * *

Question 13 — Are there any other Federal Acts where registration is required?

Answer—There are a number of Federal acts that carry a registration provision in some form. The Food, Drug, and Cosmetic Act requires the filing of formulas, labeling, etc., of new drugs, and they must receive the approval of the Food and Drug Administration before they may be sold. There are a number of others that provide for registration or licensing. In some cases a fee is provided for and in others not.

* * * * *

Question 14—Does the Act apply to exports and imports?

Answer—Insofar as exports and imports are concerned, the same provisions as in the present law apply and, in addition, they must be registered. I question whether the registration of products for export is of any particular value, but the registration of imports before they are offered for sale to the public is equally as important in affording protection to the user as the registration of products of domestic manufacture.

* * * * *

Question 15—Are informal and formal hearings provided for before court action?

Answer—The Act provides that: "* * * The Secretary of Agriculture shall cause notice to be given to the party against whom criminal proceedings are contemplated. Any party so notified shall be given an opportunity to present his views, either orally or in writing * * *." This is essentially the same as the procedure under the present act. I might say that the United States Supreme Court ruled in a case coming under the Food and Drugs Act of 1906, the wording of which was the same as in the Insecticide Act of 1910, that

"the provision as to a hearing is administrative." In other words, a hearing is not obligatory before criminal action may be taken.

No hearing is provided for before instituting seizure action. This is as it has always been.

* * * * *

Question 16—Should wide authority be granted to one individual or group?

Answer—I assume that this has reference to the registration provision that registration may be refused by the Secretary of Agriculture. It would not appear that this is an undue power. In the first place there are experts in the Department covering practically all branches of entomology, plant pathology and bacteriology, and scientists in the Government service well versed in rodent control methods, and it would seem that any decision reached by such a group would be about as accurate as could possibly be obtained. Federal authorities are interested in seeing everything done that can be done to keep these numerous types of pests under control and the more products on the market that are effective for this purpose the better. The registrant is given ample opportunity to present his case before registration is denied. Furthermore, he has recourse to the courts should registration be refused.

DDT TOXICITY

(*From Page* 101)

Further Work

Further studies on the toxicity and potential dangers of DDT to warm-blooded animals and humans are in progress in the Industrial Hygiene Research Laboratory of the National Institute of Health with special reference to the mechanism of action and fate of DDT in metabolism, including a study on the toxicity of DDT using radioactive tracing for the detection of small quantities of DDT, Carbon[14] being used as the tracer atom.

References

1. Neal, P. A., W. F. von Oettingen, W. W. Smith, R. B. Malmo, R. C. Dunn, H. E. Moran, T. R. Sweeney, D. W. Armstrong, W. C. White; Toxicity and Potential Dangers of Aerosols, Mists and Dusting Powders Containing DDT, Public Health Supplement No. 177.

2. Neal, P. A., W. F. von Oettingen, R. C. Dunn, N. E. Sharpless; Toxicity and Potential Dangers of Aerolsols and Residues from such Aerosols Containing Three Percent DDT (Second Report), In Press.

Chigger Repellents

Dimethyl phthalate, applied directly to the clothing, proved generally most effective and lower in cost than a number of other materials used to control chiggers. Indalone (butyl mesityl oxide oxalate), and 2-ethyl hexane diol-1,3 (Rutgers 612) gave good protection for 30 days when applied in the same way. Treatment of clothing proved more effective than application to the skin; application in liquid form was more effective than application in powders and ointments. A. H. Madden, A. W. Lindquist and E. F. Knipling. *J. Econ. Entomol.* 37, 283-6.

Fluorine Compounds

In small field plot experiments, 50 per cent cryolite dust was more effective than 0.25 per cent rotenone dust for Mexican bean beetle larvae, 12.5 per cent cryolite dust was more effective than 0.5 per cent rotenone dust for cabbage worms, 50 per cent cryolite dust was slightly less effective than 0.5-1.0 per cent rotenone dust for flea beetles on potatoes, and 50 per cent cryolite dust was more effective than 1 per cent rotenone dust for European corn borers on potatoes. Pyrophyllite was generally more effective as a dust diluent than clay. No consistent difference in effectiveness was found between natural and synthetic cryolite. N. Turner. *J. Econ. Entomol.* 37, 242-5 (1944).

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Synthetic and Semi-Synthetic Media for DISINFECTANT TESTING

*By Emil G. Klarmann and Eleanore S. Wright**
Lehn & Fink Products Corporation

IT is a well known fact that for quite some time various bacteriological laboratories which engage in the testing of disinfectants and antiseptics have been experiencing considerable difficulty in their endeavor to obtain agreeing results. Not only were there differences, sometimes of a considerable magnitude, between the results of the individual workers, but quite often the same worker observed variations in his own results of tests carried out with the same material on different occasions. The discrepancies may not have been very significant in the case of materials of lower germicidal potency; however, with the highly potent germicides, which made their appearance in the very recent past, differences of the order of several hundred per cent are by no means uncommon.

Theoretical Considerations

AT this point the question may be asked as to whether there is any theoretical explanation of these observed variations. While we are not aware of the existence of a sufficiency of experimental data upon which to build a fully supported theory, we have been guided in our work by a working hypothesis derived from the following considerations:

The primary action of an antibacterial agent, viz., contact with the bacterial cell calls for the display by this agent of an adsorptive affinity which in turn depends upon the existence of certain active chemical groups in the molecule of the antibacterial substance and of other active groups in some exposed biological system of the bacterial cell, the two active groupings having a capacity of mutual attraction. (For the purposes of this paper it does not appear necessary to inquire into the character of this attraction, i. e., to determine whether it depends upon the opposite polarity of the two groupings in question, whether it is physical or chemical, etc.) Assuming, for the sake of simplicity, that inactivation of a single biological system (e. g. of the respiratory enzyme system) of the bacterial cell by the antibacterial substance will place the whole cell hors de combat, it would follow that in a pure cell suspension the antibacterial (i. e., germicidal or antiseptic) effect will depend upon the minimal number of antibacterial molecules which can bring about such inactivation. Thus when carrying out a test by the F.D.A. dilution technic the comparatively high concentration of a weak germicide which is just sufficient to inactivate the test organism, indicates the presence of a large number of antibacterial molecules for a given number of bacterial cells while the low concentration of a strong germicide indicates a small number of such molecules for about the same number of cells. Indeed it is logical to postulate that in the case of very strong germicides a single antibacterial molecule may suffice to "knock out" an individual bacterial cell.

If the bacterial cells were of the simple construction assumed in the preceding paragraph, and if they were always present in the form of a pure suspension, the potency of an antibacterial substance would be determined in the last analysis by the proportion of the number of the bacterial cells (of the test microorganism) to that of the molecules of the germicide just sufficient to inactivate these cells. Unfortunately, bacterial cells are not so simply constructed, and their suspensions contain different dissolved chemical and colloidal contaminants some of which probably carry active groupings with which the antibacterial molecules will react in the same manner as with the active biological groupings of the bacterial cells; or they may react in some different manner which, however, will deprive them of their affinity for adsorption by and reaction with the bacterial cells.

Under the condition of the F.D.A. dilution technic the number of bacterial cells plus that of other reactive particles may be regarded as constant in any one test while that of the antibacterial molecules is variable depending upon the potency of the germicide under test. Since the test result may depend upon the survival of a very few cells (theoretically upon that of a single cell) of the test organism it will follow on purely statistical grounds that the probability of constancy of results is greater in the case of weak germicides with their large ratio of reactive molecules to bacterial cells, than in the case of strong germicides where this ratio is small and where, therefore, the result will be affected by a variation in the number of the cells as well as by the kind and the quantity of reactive "particles" present in the suspension which by their reactivity are capable of eliminating a portion of the antibacterial molecules from their reactivity with the bacterial cells.

It would follow from these considerations that for the sake of uni-

* Before 31st annual meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., New York, December 5, 1944.

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Sulfonation residue is guaranteed not to exceed 5% and averages far below this amount.

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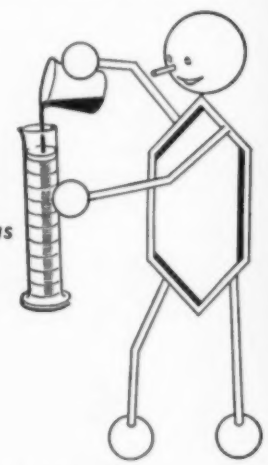

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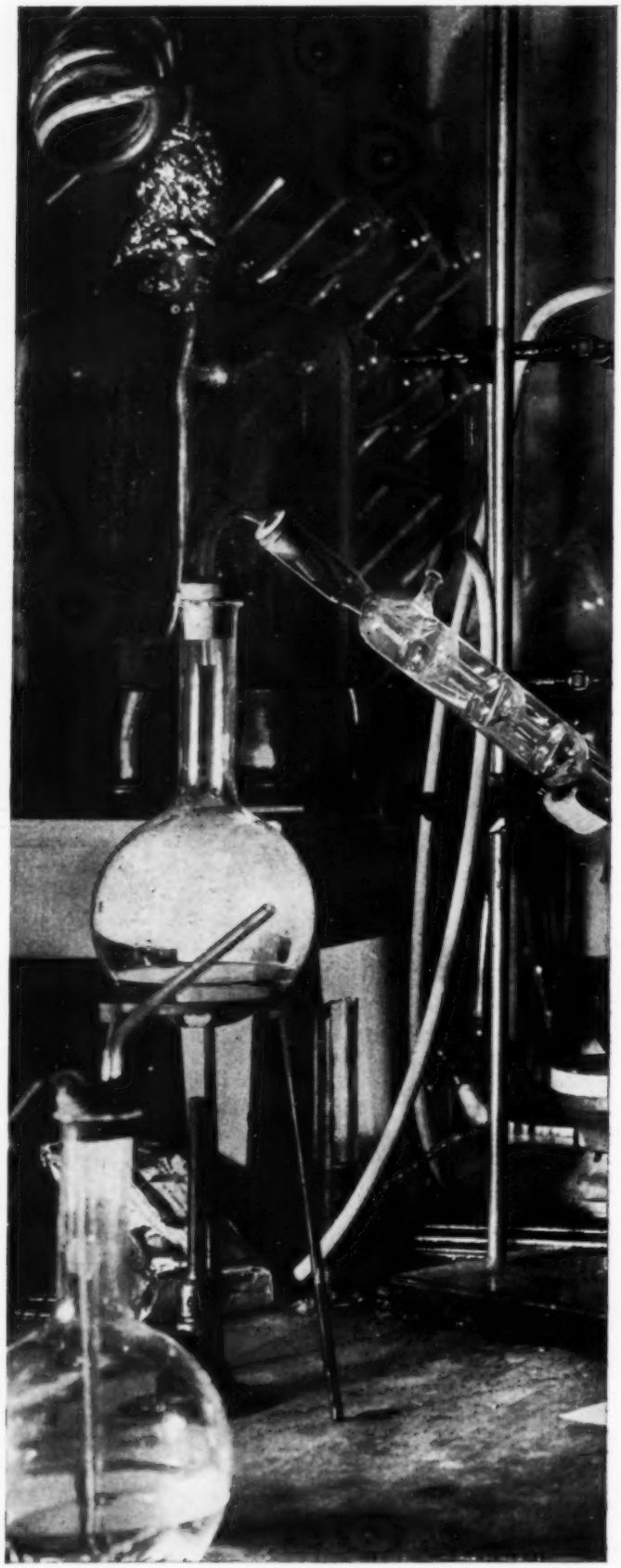

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formity of results one important thing to be striven for is constancy of composition of the test suspension which would eliminate the variation just referred to. Of course, this does not mean that all other factors in the cultivation of the test cultures, in the preparation of the media and in the performance of the test are less important. The fact is that the latter variables are usually easy to control. Unfortunately, the constancy of the composition of media has been allowed to remain a variable for a long time; and while this did not seem to have a too serious effect upon the test results so long as one had to deal with the comparatively weak products of the pre-war era, the introduction of high powered antibacterial agents focusses attention upon this troublesome variable and suggests its elimination.

The Peptone Problem

THE F.D.A. procedure described in the now classical Circular No. 198 of the U. S. Department of Agriculture, contains complete directions for the preparation of nutrient media for the cultivation of the test organisms. (1) Among other things Liebig's beef extract and Armour's peptone are specified. The former material has become all but non-existent, and as to the latter, one need only to refer to Brewer's recent findings (2) according to which with different lots of Armour's peptone considerable variations in the results were observed. As indicated above there may have been only slight differences in the phenol resistance of the test-organisms; but with respect to potent anti-bacterial substances effective in very low dilutions, such variations become enormous.

To reduce these variations it seemed logical to seek materials of more constant composition than the rather ill defined peptone. What is peptone? By definition peptone represents some stage in the degradation of some protein. Since proteins vary tremendously in composition, depending upon the kinds and proportions of the amino-acids constituting the given protein molecule it follows immediately that an undefined peptone may have been derived from any one of a large number of proteins (e. g., albumin, globulin, casein, gliadin, etc.). Another variable is supplied by the method of degradation of the protein molecule. Proteins may be partially degraded by many chemical agents, e. g., boiling water, superheated steam, hot and cold acids and alkalis, etc.; an important means of protein degradation is cleavage by proteolytic enzymes which, in turn, may lead to different degradation products depending upon the type and purity of the enzyme employed (e. g., pepsin, trypsin, papain, etc.). A third variable is introduced by the stage at which the cleavage by any of the methods referred to is interrupted; depending upon the duration of the degradation process the cleavage may be only superficial or it may be thorough leading to the semi-final or final degradation products, viz., the polypeptides or the amino-acids themselves. (A product consisting of amino-acids is not, strictly speaking, a peptone any longer; but the mere fact that the label reads "peptone" is no indication that the cleavage may not have been allowed to progress beyond the peptone stage.)

Of course, it is not claimed that the manufacturer of peptone for bacteriological purposes actually uses different proteins every time he prepares a batch, or that he employs different methods of protein degradation on each such occasion. On the other hand it is a fact that little, if any, information usually is available concerning the source of the peptone and the method of its production, and hardly any testing laboratory will go to the trouble of verifying the uniformity of this material from bottle to bottle.

It is known that the protein requirements of any living entity may be supplied by a suitable mixture of amino-acids. Of the several amino-acids some are essential, others are non-essential. Those essential for one species may not be essential for another and vice-versa. This holds true also in the case of bacteria which can use certain amino-acids as a source of nitrogen. However, the required individual amino-acids are rather expensive, as a rule, and their handling attended with considerable inconvenience, as we have found over a period of time. This is why we resorted to a "natural" mixture of amino-acids, viz., those obtained by complete acid hydrolysis of casein. It should be mentioned that this type of material was employed independently by Dr. P. A. Wolf of the Dow Chemical Company who read a paper on this subject at the October meeting of the A.P.H.A.

Nutritional Adjuvants

IN addition to a non-varying nitrogen source, other substances including vitamins are required for abundant growth of the microorganism. At first we experimented with yeast extract, but soon confirmed Kligler's (3) findings that only thiamin hydrochloride and nicotinic acid were necessary for a good growth of both *Eb. typhosa* and *Staph. aureus* which incidentally are capable of synthesizing biotin (4) and para-aminobenzoic acid (5). Thus we arrived at a medium containing the mixed amino-acids of acid hydrolyzed casein, the two vitamins, the essential mineral salts and soluble starch. This composition was found to permit growth of cultres with the phenol resistance required by the F.D.A. method. But the disappointing factor about this casein-starch medium was that it was not entirely suitable for subcultures which did not grow as readily in it. This difficulty was overcome at testing by using a separate neo-peptone broth for subcultures; thus for a time we needed two media, viz., the hydrolyzed casein-starch medium for culturing, the neo-peptone medium for subculturing.

Eventually it was found that by combining the liver concentrate U.S.P. XII with the casein amino-acids a medium resulted that was suitable for both culture and subculture. At the same time the formula could be simplified by elimination of all other organic ingredients. In its present form it reads as follows:

Water, distilled	1000	cc.
Casamino Acids (Difco)	10	gms.
Liver Vitamin B Concentrate U.S.P. XII (Wilson Labs.)	3	gms.
Sodium Chloride	5	gms.
Magnesium Sulfate	0.1	gms.

Heat to dissolve ingredients, adjust to pH 7.2 with n/1 NaOH, and filter. Tube and autoclave at 15 lbs.—121° C. for 20 minutes.

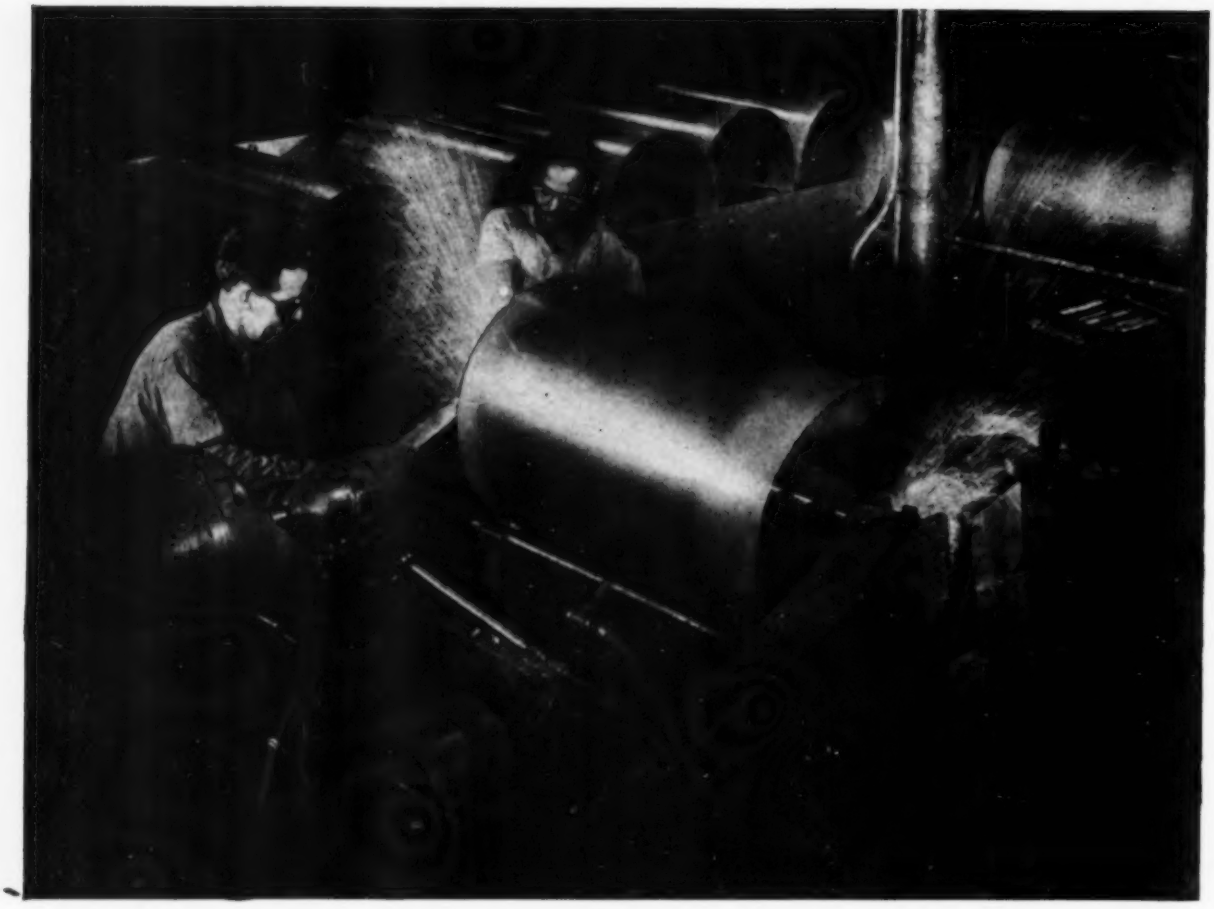

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TABLE I

Results of Tests with Cultures Grown Respectively in Semi-synthetic and F.D.A. Media

Disinfectant	*Eberthella typhosa*				*Staphylococcus aureus*			
	Semi-synthetic Medium		*F.D.A. Medium*		*Semi-synthetic Medium*		*F.D.A. Medium*	
	Minimum germic. concn. in 10 min.	*Phenol coeff.*	*Minimum germic. concn. in 10 min.*	*Phenol coeff.*	*Minimum germic. concn. in 10 min.*	*Phenol coeff.*	*Minimum germic. concn. in 10 min.*	*Phenol coeff.*
Phenol	1:90	1	1:90	1	1:60	1	1:60	1
Cresol Comp. U.S.P.	1:160	1.7	1:140	1.5	1:80	1.3	1:100	1.6
Cresylic Disinf. (p. c. 5)	1:600	6.6	1:500	5.5	1:200	3.3	1:150	2.5.
o-Phenylphenol disinf. (15%)	1:700	7.7	1:600	6.6	1:250	4.1	1:250	4.1
Synth. phenolic disinf. (p. c. 10)	1:1000	11.1	1:900	10.0	1:300	5.0	1:300	5.0
2-Chloro-4-phenyl-phenate disinf. (%).	1:600	7.5	1:500	6.2	1:400	6.6	1:400	6.6
Tar oil disinf. (p. c. 6)	1:700	7.7	1:800	8.8	1:60	1.2	1:100	1.7
Pine oil disinf.	1:300	3.3	1:200	2.2	1:2	0.03	1.15	0.25
Quaternary ammonium disinf. I	1:700	7.7	1:600	7.5	1:1000	16.6	1:1500	25.0
Quaternary ammonium disinf. II	1:1500	16.6	1:1500	18.7	1:1500	25.0	1:2000	28.5
Chlorine disinf. I	1:100	1.1	1:150	1.8	1:25	0.4	1:50	0.8
Chlorine disinf. II	1:90	1.1	1:140	1.7	1:30	0.5	1:80	1.3
Dodecylamine acetate 10%	1:1500	16.6	1:1500	18.7	1:400	6.6	1:400	6.6

The above formula has the advantage of great simplicity and ease of preparation. Thus far, we have worked with three different lots of casamino acids, and with three of the liver concentrate with uniform results.

All cultures used for disinfectant testing were 24 hours old. Incubation took place at 37.5° C.

In 27 out of 29 tests *Eb. typhosa* gave the following results at 20° C. with respect to phenol.

Dilution	5 *min.*	10 *min.*	15 *min.*
1:80	—	—	—
1:90	±	—	—
1:100	+	+	±

and in two tests the results were:

Dilution	5 *min.*	10 *min.*	15 *min.*
1:80	—	—	—
1:90	+	+	—
1:100	+	+	+

In 20 out of 29 tests Staph. aureus (Strain No. 209) gave the following results at 20° C.:

Dilution	5 *min.*	10 *min.*	15 *min.*
1:50	—	—	—
1:60	+	—	—
1:70	+	+	+

and in nine tests the results were:

Dilution	5 *min.*	10 *min.*	15 *min.*
1:50	—	—	—
1:60	+	+	—
1:70	+	+	+

Staph. aureus usually gave the following readings at 37° C.:

Dilution	5 *min.*	10 *min.*	15 *min.*
1:90	±	—	—
1:100	+	—	—
1:110	+	+	+

Thus at 20° C., both *Eb. typhosa* and *Staph. aureus* grown on this medium show a phenol resistance within the limits set by the F.D.A. method; only at 37° C. does *Staph. aureus* show a somewhat lower resistance than that mentioned in the F.D.A. method.

Incidentally, in the case of *Staph. aureus* the cultures were grown in a slanted position to increase the surface area, in agreement with the observation by Brewer (6).

Using cultures grown in the semi-synthetic medium described, as well as those grown in the F.D.A. broth, we carried out comparative tests with a number of disinfectants. The results are shown in Table I, above.

On the whole, there appears to be a satisfactory agreement between the two series of tests. The numerical data given are typical of several test results differing among themselves only within the permitted limits of error. While the data obtained in the case of the cresylic and of the synthetic phenolic disinfectants do not seem to call for any particular comments, it should be noted that the chlorine preparations appear to be somewhat less effective with respect to bacteria grown on semi-synthetic media than with respect to those grown on F.D.A. broth.

In addition to the compounds listed in the table, we tested also a number of organo-mercurials widely employed as antiseptics. When subculturing them on thioglycollate medium, we found them to be practically devoid of any germicidal power, particularly with respect to *Staph. aureus*, regardless of whether the test culture was grown on the semi-synthetic or on the F.D.A. medium.

We plan to extend this work to the other test procedures of Circular 198, and particularly to the wet and dry filter paper technics, as well as to the agar plate and agar-cup plate methods.

The "All-Synthetic" Medium

WE desire to record also our preliminary experience with an "all-synthetic" medium, i. e., one which is composed entirely of well-defined chemical compounds. Thus far this medium was found to be satisfactory for *Eb. typhosa* only, giving remarkably constant readings of its phenol resistance. Unfortunately, it is not satisfactory for subcultures which must be transferred to the F.D.A., the semi-synthetic or the neopeptone broth. We intend to modify the "all-synthetic" formula further in order to arrive at one that would be suitable for subculturing as well. For the sake of possible interest, we are listing the ingredients of the "all-synthetic" formula as used last:

Distilled water	1000	cc.
Diammonium phosphate	2	gm.
Sodium chloride	5	gm.
Glucose	2	gm.
Potassium acid phosphate	1.36	gm.
Sodium phosphate diabasic	3.31	gm.
Sodium thiosulfate	0.1	gm.
Magnesium chloride $6H_2O$	0.1	gm.
Tryptophane	0.1	gm.
Cystine	0.1	gm.
Tyrosine	0.1	gm.
Niacinamide	0.01	gm.
Thiamin hydrochloride	0.01	gm.

The medium is filtered, tubed and autoclaved for 20 minutes at 15 pounds pressure. The final pH is 6.9.

Eb. typhosa has been grown on this medium for seven months with transfers made on six days each week.

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TABLE II

Results of Tests with Eberthella typhosa Cultures Grown Respectively in "All-synthetic" and in F.D.A. Media

Disinfectant	*All-synthetic Medium*		*F.D.A. Medium*	
	Minimum germic. concn. in 10 min.	*Phenol coeff.*	*Minimum germic. concn. in 10 min.*	*Phenol coeff.*
Phenol	1:90	1	1:90	1
o-Phenylphenol disinf. (15%)	1:500	5.5	1:600	6.6
2-Chloro-4-phenyl-phenate disinf. (8%)	1:500	5.5	1:500	6.2
Tar oil disinf. (p. c. 6)	1:700	7.7	1:800	8.8
Quaternary ammonium disinf. I	1:800	10.0	1:600	7.5
Quaternary ammonium disinf. II	1:2000	25.0	1:2000	25.0
Chlorine disinf.	1:125	1.3	1:140	1.7

Some difficulty may be encountered at first in inducing this microorganism to grow on this medium, but after 10 days a growth equal to or better than the silica standard of 500 p.p.m. is obtained in 24 hours.

Out of 25 tests with phenol, 20 gave the following readings:

Dilution	*5 min.*	*10 min.*	*15 min.*
1:80	—	—	—
1:90	+	—	—
1:100	+	+	+

and five were as follows:

Dilution	*5 min.*	*10 min.*	*15 min.*
1:80	±	—	—
1:90	+	+	—
1:100	+	+	+

A ttempts are being made to buffer the medium more satisfactorily as after 24 hours of growth of *Eb. typhosa* the pH is about 5.8. This rise in acidity may have an effect upon the outcome of some disinfectant tests. The following table II gives the results of several comparative tests of disinfectants using cultures of *Eb. typhosa* grown respectively upon the "all-synthetic" and the F.D.A. media.

While the above results compare rather satisfactorily, the "all-synthetic" medium is not yet being recommended for general adoption. Experiments are in progress at this time aiming at the development of a formula not only suitable for subculturing of *Eb. typhosa* but also for culturing and subculturing *Staph. aureus*.

It should be emphasized at this point that with the presentation of the formulae of these media no claim is made for a solution of the problem of consistent quantitative bacteriological results, particularly in the case of the high-powered antibacterial agents All that we hope to achieve is the elimination of another single variable factor which together with certain other factors is assumed to interfere with the reaching of this goal. Work is continuing on this subject and further contributions toward the solution of this problem may be anticipated. At this time, however, the semi-synthetic formula is hereby presented and recommended for general consideration and eventual adoption in connection with disinfectant testing.

Summary

AN attempt has been made to supply a working hypothesis for the wide variations in the results of bacteriological tests of germicidal materials.

One of the difficulties appears to reside in a lack of constancy of composition of the nutrient media used in culturing the test organisms *Eb. typhosa* and *Staph. aureus*, and particularly in the chemical indefiniteness of the peptone. Semi-synthetic and synthetic formulae for media were developed of a more definite character with the idea to eliminating this variable. Cultures grown on these media display a satisfactory and constant phenol resistance. There is also a good agreement between tests of several disinfectants employing respectively cultures grown on the semi-synthetic media and on F.D.A. broth.

The semi-synthetic formula is recommended for consideration and eventual adoption in connection with disinfectant testing.

References

(1) G. L. A. Ruehle and C. M. Brewer; Circular No. 198 U. S. Dept. of Agriculture (Dec. 1931).
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(3) I. J. Kligler et al.; J. Bacteriol. 46,399 (1943).
(4) M. Landy; Proc. Soc. Exp. Biol. Med. 46,449 (1941).
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(6) C. M. Brewer; Am. J. Pub. Health 32,401 (1942).

Container Order M-81 Amended

THE War Production Board order M-81, restricting use of metal containers made of tin plate and terneplate, was again amended January 1, 1945. While the complete text of the amended order is not yet available, and time has not yet been sufficient to judge its full effect on the insecticide manufacturer, the amendment will, it is believed, have a liberalizing effect on previous restrictions. Metal containers not made of tinplate or terneplate, but made only of blackplate or waste, are removed from all restrictions in the amended order.

On cans made of electrolytic tinplate, or tinplate waste-waste, insecticide manufacturers will be governed by section (d) of the new order. This provides that these two materials may be used by manufacturers of certain unlisted products (including insecticides) without restriction as to size of container. However, the total area of tinplate so used during the calendar year must not exceed the total area of tinplate and terneplate used by the packer in the soldered parts of cans to pack the same product in the year 1941. Also during the first six months of any calendar year no packer may accept delivery of more than 50 per cent of his annual quota.

Manufacturers of liquid soaps are also given a quota on electrolytic tinplate or tinplate waste-waste of 100 per cent of 1941. Manufacturers of cleaners, including wall paper, window spray, radiator liquid and paste cleaners, are allowed an unlimited quota.

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INSECT REPELLENTS

By Dr. W. E. Dove*

Bureau of Entomology and Plant Quarantine, U. S. Dept. of Agriculture

AN INSECT repellent is a substance that drives away insects. It may do this when the insects touch the repellent or it may affect their sense organs and cause them to fly away before they touch the material. Strangely enough, some repellents actually kill insects by contact, and because of this effect, they should properly be classed as contact insecticides. These repellents are only partly effective because they permit insects to land on the body of man or on animals and cause some annoyance. Also, this lack of protection could actually permit a mechanical transmission of a harmful organism carried by this insect. For example, a flea infected with an immature stage of a tape worm could be taken into the mouth of a dog, thereby affording the dog tape worm a chance to complete its life cycle.

Our chief interest in repellents, therefore, is among those chemicals that will drive away insects without coming in direct contact with them. These chemicals are not necessarily ones with odors that can be detected by man. Although creosote oil has a strong odor to man and might be expected to repel all flies, actually, however, stableflies or dog flies will crawl over it and lay eggs on the exact areas of certain fermenting vegetable wastes that have been sprayed with creosote oil.

Some chemicals have odors that are offensive to both man and insects and for this reason they are not satisfactory as repellents. If one uses an extract of vanillin or of lotus flowers, the odor of these materials will drive away certain blood-thirsty insects, and cause them to cease feeding for many hours. Even hungry mosquitoes in test cages seem to lose all desire to feed. If one attempted to use a repellent of this kind on his skin he would find it a most difficult task to conceal his presence, even during a dark night.

Other chemicals that do not possess any odors that can be detected by man are found to be good repellents for insects, but cannot be used because they are irritating or when absorbed through the skin are toxic and hence unsafe for use. Many of the most efficient chemicals for repelling insects come within this category, and they are discarded when the toxicologists find that they are not safe.

Because there is a need for insect repellents that can be used on clothing as well as upon the skin, investigations of the Orlando laboratory of the Bureau of Entomology and Plant Quarantine have been directed toward liquid repellents that are safe to use, and ones that can be depended upon to protect man from insect-borne diseases.

Due to the fact that a disease may be transmitted by the bite of a single infected insect, our laboratory tests have been made to determine the average period between the application of the repellent and the time of the first bite. By applying the substance to a susceptible host (man) and exposing the treated part to a colony of hungry mosquitoes in cages, it has been possible to determine if a chemical possessed repellency and also the degree of protection that can be expected. By this method it was possible to quickly eliminate chemicals that showed little or no protection and to choose ones that were worthy of field experimentation. Those giving protection for 120 minutes against *A. quadrimaculatus* and 180 minutes against *Aedes aegypti* were considered worthy of further consideration. If they were promising from the standpoint of production, further experiments were conducted in nature where different species of salt marsh or swamp breeding mosquitoes were present in considerable numbers. Volunteer men with unclothed arms and legs were treated with the repellents that showed promise in laboratory tests and were directed to walk in a rotary fashion so that each one afforded the same opportunity for mosquitoes to bite.

As a result of such testing, some good insect repellents were discovered, recommended, and used for protection of troops of the allied armies of World War II from insect-borne diseases. One of these was brought to light by the Standard Oil Company prior to the war. It is known as dimethyl phthalate. Our tests showed that it was efficient as a mosquito repellent, and especially effective against *Anopheles quadrimaculatus*.

Another repellent known as Indalone was found by Kilgore to be a good repellent for flies. Our early tests showed that it was also more efficient against some species of mosquitoes than the commonly used oil of citronella. Because these two repellents were found by Dr. H. O. Calvery and his staff, of the Food and Drug

*Address before 31st Annual Meeting, Nat'l Assn. of Insecticide and Disinfectant Mfrs., New York, Dec., 1944.

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Administration, to be safe for use on the skin, they were soon adopted and used in quantities.

A third repellent that is known as Rutgers' 612 was developed in cooperation with this Bureau and the New Jersey Experiment Station by the National Carbon Company. It gave a long period of complete protection from *Aedes aegypti* and was fairly effective against other mosquitoes. The large scale use of three repellents led to a need for simplifying the problem of supply. When tests were made with some mixtures of the three repellents, there was a surprise in store. Instead of the average period of protection that one would expect, there was as much protection against *Anopheles quadrimaculatus* as was previously obtained with dimethyl phthalate. The mixture was as good against biting flies as pure Indalone and it was comparable to the protection obtained from Rutgers' 612 against *Aedes* and other mosquitoes. The mixture gave as good protection against chiggers, immature stages of ticks, sand flies, buffalo gnats, and other insects as any of these three repellents. These tests resulted in the adoption of the mixture of the three repellents for military uses, and it became known as 6-2-2 or 1-1-1, depending upon the proportion of the different repellents used. The triple mixture was therefore admirably adaptable to the problem of supply because the proportion of the ingredients could be varied to some extent without sacrificing efficiency.

In the postwar period the present repellent mixture, as well as some new compounds that have not yet been fully tested or reported upon, promise to take an important place in civilian use. It is believed that they will replace most of the essential oils that have been sold locally in the past and that the demand for repellents for use on man in this country may be about three times that experienced before the war. With increased interest in recreation and resorting, we could expect a corresponding interest in the use of repellents.

Because tests with all of these repellents have been confined principally to use on the skin and on the clothing of man, very little is known of their possible uses on animals for different kinds of biting flies and mosquitoes. This means that before repellents are recommended for use, much research work will have to be done. The quantities used will undoubtedly depend to a considerable extent upon the place occupied by new sprays for killing insects. We can anticipate the use of DDT sprays on walls and screens for gradual reductions of fly populations. If some formulations of such sprays are used on animals, they may be found rather slow in killing stable-flies, horse flies, and deer flies. These kinds of flies may bite and fill with blood before they die from the effects of the sprays. For these important kinds of flies there would seem to be an opportunity for including in the new sprays a repellent that would drive away the flies during milking or for longer periods of time. Again, this involves more research if we are to get the correct answer. If repellents are used in spray mixtures, will they drive away the insects during the period when the fly toxicant is most effective, thereby reducing the efficiency of a spray as a killer of horn flies and other flies on cattle?

From more than 4,000 compounds, there are about 10 new repellents that need to be tested on man for a variety of insects under different conditions and for insects that affect domestic animals. Some of these should also be tried for protecting crops from insect damage and for protecting beneficial insects from plants that are treated with insecticides.

The present list of promising repellents needs to be increased so that the most efficient ones can be used to fill some new needs. At this time, the machinery for testing laboratory repellency of samples of new organic compounds is available to manufacturers of chemicals. It would be a pleasure to test hundreds of samples of organic compounds from a single firm. A list can be furnished to the manufacturer of some compounds that show little or no repellency. It is believed that the list can aid the manufacturer in the selection of samples. Then in advance of the shipment of samples, it would be desirable if a list of compounds available for tests could be received so that advices may be offered on ones that have already been tested.

Toxicity Studies of DDT

DDT is acutely toxic by mouth to small laboratory animals, including rats, mice, guinea pigs, rabbits and chicks, in doses ranging from 150 to 750 mg. per kilogram of body weight. Acute doses result in death. DDT is capable of causing subacute toxicity when given in small amounts in the diet for periods of 3 days to 20 weeks. Definite signs of toxicity are produced by levels in the diet of 0.05 per cent for rats and mice, 0.1 per cent for guinea pigs, and less than 0.05 per cent for growing chicks. Characteristic of DDT poisoning is the wide variation in individual susceptibility, which makes an estimate of a safely tolerated dose extremely difficult.

Solutions of DDT in dimethyl phthalate are absorbed by both intact and abraded skin. DDT in solution causes a mild but definite sensitization in the guinea pig. The data indicate that the unlimited use of DDT solutions on the skin is not free of danger. However, some solutions are safe for restricted use.

Application of powders containing 5 per cent of DDT to the skin of experimental animals and in contact with the hands of operators, produced no evidence of systemic toxicity or of primary irritation. Arthur A. Nelson, Herbert O. Calvery et al. *J. Pharmacology* 82, 152-66 (1944).

Destroying Fly Pupae

Pupae of the housefly, *Musca domestica* L., were placed in muslin bags and buried in soil. Para-dichlorobenzene at 1.2 ounces or more per square yard, polychlorides containing a mixture of chlorobenzenes at 3 ounces per square yard, and a product containing 40 per cent sodium cyanide at 1.8-2.4 ounces per square yard applied as a 2 per cent aqueous solution, were fairly toxic to insects 2 inches below the soil surface. P I. Egorov. *Med. Parasitl.* (U.S.S.R.) 9, 528-30; through Chem. Abs.

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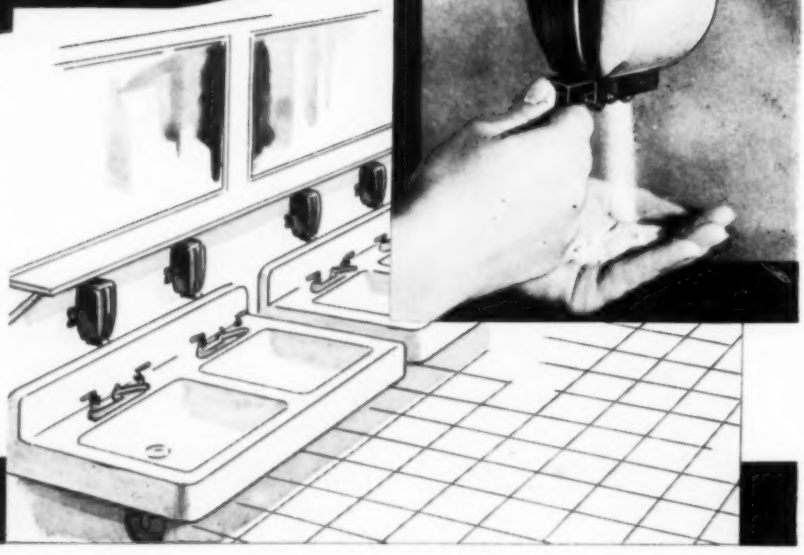

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Entomlogists Hold Joint Session

A THREE-DAY program of papers and discussion dealing with insect pests, insecticides and their application, featuring a full-day discussion forum on DDT, was held at the Hotel New Yorker, New York, December 13, 14 and 15 at the annual joint session of the Entomological Society of America and the American Association of Economic Entomologists. At the close of the meeting a summary of the entomologists' attitude toward DDT was issued in which it was stated as the official observation of the AAEE that "DDT holds tremendous promise for usefulness but much study is still needed."

Before adjourning the approximately 400 delegates elected Dr. D. L. Van Dine, in charge of the Division of Fruit Insect Investigations, Bureau of Entomology and Plant Quarantine, as president of the Association. He succeeds Dr. E. O. Essig, head of the Department of Entomology at University of California. Dr. T. H. Frison, chief of the Illinois State Natural History Survey, was chosen vice-president, succeeding S. A. Rohwer.

The association's complete statement on DDT follows:

"We feel that never in the history of entomology has a chemical been discovered that offers such promise to mankind for relief from his insect problems as DDT. There are limitations and qualifications, however.

"Subject to these, this promise covers three chief fields: public health, household comfort, and agriculture. As public health we include control of the insects which carry diseases that have scourged humanity, such as malaria, typhus and yellow fever. Household comfort is taken to cover such things as flies, fleas, bedbugs and mosquitoes. Agriculture includes not only farms, gardens and orchards but forests, livestock and poultry.

"In the public health field DDT insecticides are so much more effective than previous weapons against malaria mosquitoes that for the first time there is a practical hope for eradicating that disease from this country. DDT proved in Italy that it is the first and only practical control for typhus. In the household field its amazing lasting effect promises relief for months from flies, mosquitoes and fleas. In the case of bedbugs, eradication from the American home has become a possibility.

"In agriculture, it is promising against a wide variety of destructive pests. These include most potato insects, many orchard and vineyard pests, numerous vegetable insects, as well as the chief insect enemies of vitally important seed crops. It appears to be effective against the pink bollworm and outstanding against the Japanese beetle, two of our worst imported pests. It promises also a more practical control of the pests which ravage thousands of square miles of forest, and against many of those which harrass livestock.

"DDT will not kill all the important insect pests. It will kill many beneficial insects which are allies of mankind against the destructive species. Because of its toxicity to a wide variety of insects, its large-scale use might create problems which do not now exist. To illustrate, it is a superior insecticide for control of codling moth on apples, but in some sections at least will kill certain natural enemies and thus release other insects which may then become major problems.

"The research reports emphasize that we have not had time to develop entirely satisfactory mixtures and dosages of DDT insecticides, nor the methods and timing of application for many possible uses. Modern agricultural pest control often requires mixing several materials in combination treatments, and we know little of DDT's compatibility with many of these others. Researches thus far were made with a material which was produced under pressure for military needs, and which is not necessarily the best form for agriculture.

"We do not know enough about effects on plants, animals and soils. While most plants were not harmed by DDT insecticides in the experiments, injury to squash, corn, tomatoes and possibly fruit trees was reported. DDT is toxic to animal life when large amounts are taken internally or absorbed through the skin from oil solutions, but reports indicate a reasonable margin of safety. In the light of our present knowledge, heavy deposits on edible parts of plants should be avoided. Reports show definite toxicity to cold-blooded animal life including fish and frogs. There has not been time to learn the possible cumulative effects on soils.

"More and larger-scale experimentation is needed. Enough DDT for such research in 1945 should be provided."

One development at the meeting which promises to make itself felt in the future conduct of the organization was the submission of a petition by a group within the AAEE requesting the formation of a new Insecticide Section. The purpose of the new section would be to hear papers covering research and development on new insecticides, improvement of old insecticides, and new methods and equipment for application of insecticides. The petition for the establishment of this new section received wide support, and it was indicated that such a group will in all probability be set up.

In his annual president's report, Dr. E. O. Essig, outgoing president, said that entomologists are now looking beyond mere control to the prospect of complete extermination of some insect pests. Dr. Essig called extermination "one of the most promising prospects in future control, not only of newly introduced pests but also those of long standing," and offered it as a postwar employment project. "It is not too extravagant to believe," he observed, "that such important destructive pests as the gypsy moth, browntail moth, Japanese beetle, all species of Anopheles, bedbugs, human louse, common species of fleas, housefly, and many others can be completely eradicated in this country."

Entomologists should enlist the balance of nature to help their work of protecting farm and forest crops, Dr. Harold H. Stage of the U. S. Bureau of Entomology and Plant Quarantine told the convention. He reported for the committee on the relation of entomology to conservation.

"More attention," he said, "should be given to our indigenous beneficial insects. We should consider ways and means of conserving this valuable asset and increasing the effectiveness of natural biological control of destructive species. The Fish and Wild Life Service has performed miracles in increasing the numbers of many game birds and mammals. There is no reason why entomologists cannot discover means of increasing the populations of certain valuable insect and other parasites and predators and of the various bees which, as pollenizers, increase fruit and seed production. The close relationship between pollinators and seed production is still receiving scant attention from most entomologists."

Dr. F. L. Knowles, senior bacteriologist of the U. S. Public Health Service, Office of Malaria Investigation, reported to the group on the striking

(*Turn to Page* 133)

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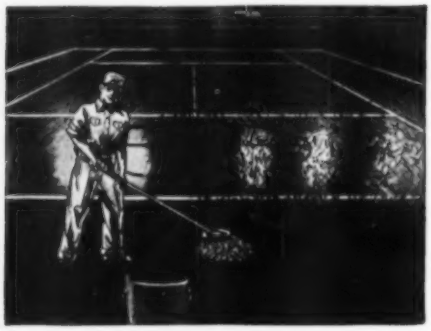

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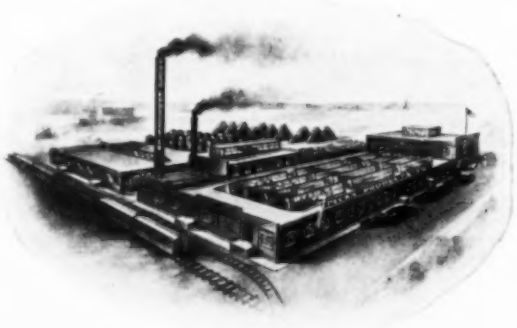

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TRADE NEWS . . .

Davis Has Additional Duties

George F. Davis, sales manager of the "Whiz" industrial division of R. M. Hollingshead Corp., Camden,

GEORGE F. DAVIS

N. J., has added to his duties by becoming sales manager of the "Whiz" household division, as well, the company announced recently. Mr. Davis will be assisted in his new duties by Grover C. Culshaw, formerly of the Hollingshead special brands division. Mr. Davis, for 13 years connected with the advertising and sales department of the *Saturday Evening Post*, and former advertising agency account executive, joined Hollingshead in 1943.

W. F. Helies Joins Velsicol

Velsicol Corp., Chicago insecticide, resin and petroleum product manufacturers, recently announced that Wallace F. Helies had joined its organization as sales development engineer. Formerly with the chemical products department of Standard Oil Co. of New Jersey for 10 years, Mr. Helies is a graduate of the school of Science and Technology of Pratt Institute.

R. Prentiss Rejoins Firm

Richard Prentiss has just resumed his civilian status as president of R. J. Prentiss & Co., New York importers of pyrethrum, red squill and derris products, following two years of army service. Mr. Prentiss, who is 45, held the rank of major and was attached to the Surgeon General's Office, Headquarters Medical Corps., Washington, D. C. Now on inactive reserve, he entered the army in Nov., 1942, with a captain's commission, Sanitary Corps, U. S. Army.

Purdue PCO Conference Jan. 15-19

The ninth annual Purdue Pest Control Operators' Conference will be held at Purdue University, Lafayette, Ind., Jan. 15-19. In addition to the usual collection of pests operators are unable to identify, and specimens of damage that may be unusual, members planning to attend are requested to bring along or send gadgets or equipment, useful in pest control work, that they have developed. Discussion sessions will center on present-day, wartime problems, and also problems arising out of postwar developments. A symposium on DDT will be held at the meeting.

Two Continental V-P's Resign

Frank J. O'Brien and Eugene J. O'Connor, vice-presidents, resigned recently from Continental Can Co., New York. Mr. O'Brien went with the company in 1928 when Continental acquired Southern Can Co. of Baltimore. Mr. O'Connor, a native Chicagoan, who started with the company as an office boy in 1913, was appointed a vice-president in 1943, after having been transferred to sales in 1926 and made assistant general manager of general line sales in 1936.

Dr. Henry Sundheimer Dies

Dr. Henry Sundheimer, 68, president of Henry Sundheimer, Inc., New York, died Dec. 17, at the Essex House, New York. A native of Germany, Dr. Sundheimer came to the United States in 1904 and was active in the development of processes for the recovery of fluorene. He is survived by three brothers, a niece and a nephew.

Penick Bonus in Bonds

In conjunction with its 30th anniversary, S. B. Penick & Co., insecticide raw materials and botanical

S. B. PENICK, SR.

drugs, New York, will present War Savings Bonds to more than 65 of its employees who have been with the company from 10 to 25 years, it has just been announced. Amounts of the bonds will be based on length of service. The Treasury Department's approval of the presentation has been granted.

In connection with the anniversary the Penick company issued a booklet telling something of the history of the company in the thirty years since its formation in 1914 by S. B. Penick, Sr., now chairman of the board. The booklet also carries pictures and short biographical sketches of several members of the Penick 25-year club, as well as records of Penick men in the Armed Services.

DDT Researcher Honored

Paul Laeuger, technical director of J. R. Geigy, Swiss parent organization of Geigy Co., Inc., New York, dyestuff house, has been awarded the honorary degree of Doctor of Medicine for his work in "Gesarol," "Neocid" and other DDT insecticidal compositions by Basle University, Switzerland.

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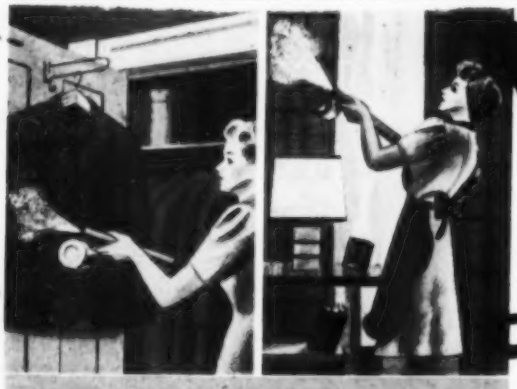

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Form DDT Insecticidas, Ltda.

DDT Insecticidas, Ltda. has been established in Rio de Janeiro, Brazil, to introduce new types of insecticides on the Brazilian market, particularly the various kinds of DDT products. The company states that it is an authorized agent for the sale of DDT products of Geigy do Brasil, S.A., Brazilian branch of Geigy of Basle, Switzerland. They also state that they are the largest distributing firm in Brazil for the Geigy insecticide material, "Neocid." The new company which is located at 114 Rua Buenos Aires, Rio de Janeiro, desires to contact American manufacturers of spraying and dusting equipment for the South American market.

Liberalize Rotenone Use

The War Food Administration has recently revoked its pyrethrum and rotenone orders, (WFO-46 and WFO-49) and control over agricultural end use of these two insecticide materials will now be exercised solely through WPB allocations to processors. This action does not reflect any improvement in the supply situation on either material, according to a WFA official, but merely the substitution of a different type of control for the two WFA orders.

Another joint announcement by WFA and WPB puts an end to previous restrictions which established maximum percentages of rotenone content for finished insecticides. It was found that such restrictions often had the effect of wasting rather than conserving the short supplies, since in some cases the controls reduced the rotenone content down to the point where the application was almost completely ineffective. The new policy will make it possible for manufacturers to offer finished insecticides having sufficient rotenone content to assure adequate crop protection.

Continental Advances R. V. Wilson

Roger V. Wilson, formerly manager of general line customer service, has recently been named director of customer service of the research department of Continental Can Co., New York. He succeeds L. F. Pratt, who resigned to take a position with Hunt Bros., Hayward, Calif. Mr. Wilson, a graduate of Iowa State Teachers College, has been with the

ROGER V. WILSON

company since 1928. Since 1937 he has been in charge of manufacturing development and general line packaging, chief of the general line section and manager of the general line customer service.

Chemical Determination of DDT

The U. S. Department of Agriculture has just released in mimeographed form the text of an approved method for the determination of DDT. It is a modification of Winter's method for the determination of halogen in organic compounds which has been adapted for the determination of DDT. About one hour is required for an analysis and the method is sufficiently sensitive for the determination of DDT in spray residues. Copies are available from the Bureau of Entomology & Plant Quarantine, U. S. D. A.

Cabot Buys Pine Tar Plant

Purchase of the plant and facilities of Retort Chemical Co., Gainesville, Fla., by Cabot Carbon Co., was announced late last month by the parent company, Godfrey L. Cabot, Inc., Boston, carbon black producers. Completion of the transactions was set for Jan. 1, 1945. Retort Chemical Co. produces pine tar, turpentine, charcoal and miscellaneous wood products, for which the Boston headquarters of Godfrey L. Cabot, Inc., will act as selling agents.

Toxicity of DDT

The Federal Security Agency, U. S. Public Health Service has just issued a 32-page booklet which covers "Toxicity and Potential Dangers of Aerosols, Mists and Dusting Powders Containing DDT." Contributors to the symposium include P. A. Neal, W. F. von Oettingen, W. W. Smith, R. B. Malmo, R. C. Dunn, H. E. Moran, T. R. Sweeney, D. W. Armstrong and W. C. White. The following conclusions are presented as to the probable toxicity hazards involved in use of DDT:

Conclusions

In spite of the inherent toxicity of DDT, its use in a 1- to 5-per cent solution in 10 per cent cyclohexanone with 89 or 85 per cent of Freon as aerosol should offer no serious health hazards when used under conditions such as those required for its use as an insecticide. It should be pointed out that the solution of DDT in fatty oils definitely increases its toxicity, and that the results obtained by using a solution of DDT in cyclohexanone are not necessarily comparable to the effects produced by a solution in oil.

The use of DDT in concentrations up to 10 per cent in inert powders, for dusting clothes, as in the extermination of lice, appears to offer no serious hazards because of the relative insolubility of DDT and the large particle size of the dust. Therefore, it does not reach the alveolar spaces. A large proportion of the dust is retained in the uppermost sections of the respiratory tract. The remainder is swallowed. On account of its relative insolubility it is thought that only a small fraction is absorbed.

Because the use of a 1 per cent DDT-deobase mixture was found to be nontoxic to rabbits with heavy exposure for 48 minutes daily, over a period of four weeks, it is believed that its use as a fly spray, which involves only temporary and comparatively moderate exposure to much lower concentrations, should be safe. However, due to the fat-solvent properties of most petroleum distillates, irritation of the skin may occur following heavy exposure.

Although this study deals only with the appraisal of the potential dangers of DDT when inhaled as aerosol, dust, and mist, it should be pointed out that ingestion of massive doses of DDT will cause a toxic reaction. It should, therefore, only be used under conditions which exclude the heavy contamination of food.

Since these experiments were concluded a thorough clinical and laboratory study has been made of three men who have each had several months continuous occupational exposure to DDT used in various forms as an insecticidal agent.

An evaluation of the results of these examinations fails to indicate any definite evidence of toxic effects from the exposure the three subjects have had to DDT.

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Offer DDT License Agreements

GEIGY CO., INC., New York, are currently reported negotiating agreements for licensing of insecticide firms under the "Geigy Patent," U. S. No. 2,329,074, which covers sale of DDT-containing insecticides. The licenses are non-exclusive and non-transferrable, and besides involving a royalty payment also provide that any improvements developed in the use and application of DDT insecticides by the licensor shall become the property of Geigy Co. The royalty paragraph from the license agreement is reported to read as follows:

> Licensee will pay to Licensor, in respect of insecticidal compositions covered by any of the claims of the Geigy Patent or any Geigy Improvement Patent sold by the Licensee, a royalty at the rate of five per cent of the net sales price (i.e. gross sales price, less discounts, returns and allowances) of all such compositions sold by Licensee, provided that said royalty in respect of any such composition shall not exceed an amount equal to seven and one-half per cent of that part of the net sales price thereof which bears the same ratio to the total such net sales price as (a) the cost of the chemical compounds included in such composition of the specific or generic structural formulae set forth in the claims of the Geigy Patent and the carrier therefor disregarding any cost of such carrier in excess of an amount equal to the cost of said compounds, bears to (b) the total cost of all ingredients included in such composition. In determining any such cost ratio the cost of any ingredient included in such composition shall be deemed to be (1) in the case of an ingredient purchased from others and (2) in the case of an ingredient manufactured by Licensee the current market price at which such ingredient could be purchased f.o.b. Licensee's plant or, if such ingredient could not be so purchased, then the cost of manufacture thereof to Licensee.

Other sections of the agreement cover numerous restrictions, amplifications and details. An exception, for instance, is that the license does not cover the use or sale of DDT compositions for the treating of furs and wools in processing stages. The license may be extended by the licensee to its subsidiaries, which also become bound by the same terms. Royalty payments are to be made quarterly, and it is provided that accountants must be given access to the books of the licensees to check on the basis for the determination of royalties. The agreement specifically provides that no royalties are to be assessed on any transactions during the present war or for six months afterward, involving sales to the United States Government.

The full text of the paragraph covering reversion to Geigy of any improvement patents reads as follows:

> Licensee hereby grants to Licensor a royalty-free, non-exclusive, non-transferable license under Licensee's Improvement Patents for the full terms thereof to make or have made for it, use and sell in the United States insecticidal compositions covered thereby.

Another section provides in general that if licenses are later granted to other licensees by Geigy under more favorable terms, these same more favorable terms must be extended to all other licensees.

Finally, provision is made for termination of the agreement where this becomes desirable, as follows:

> This Agreement may be terminated by Licensee upon sixty days prior written notice to Licensor at any time after (a) the expiration of two years after the termination of the present war or (b) the expiration of four years after the date hereof, whichever of said periods (a) or (b) shall be shorter. Such termination shall not (1) affect rights granted under Section 3 hereof as to Licensee's Improvement Patents based on inventions made prior to such termination nor (2) relieve Licensee of any obligation or liability accrued prior to such termination.

Lambert Advances Norton

John S. Norton was appointed executive vice-president of Lambert Pharmacal Co., St. Louis, succeeding R. L. Lund, who retired last July 1, after 20 years with the company, it was announced late last month. Mr. Norton and Mr. Lund are still directors. Also announced was the appointment of co-sales managers to suceed John A. Schake, who retired recently as general sales manager. The new sales managers include: Hal Starrett, with headquarters in San Francisco, whose territory is west of the Mississippi, and Fred Ballentine, who makes his headquarters in Philadelphia to cover the territory east of the Mississippi. Miss Emma Bueck, with headquarters in St. Louis, will be assistant sales manager.

A Review of DDT

Murphy Chemical Co., Ltd., Wheathampstead, Herts, England, has just issued a 24-page booklet reviewing the history, properties and insecticidal applications of DDT. According to the authors of the booklet, V. H. Chambers and N. K. Smitt, the most promising use to which DDT-containing insecticides may be put is the control of the apple blossom weevil. Next in order of importance, they believe, would be the control of caterpillars on fruit trees where sheep, cattle or poultry feed beneath the trees and lead arsenate cannot safely be used. This British firm plans to market DDT insecticides under the trademark "DeDe-Tane" as soon as DDT is available for commercial use.

Detroit Insecticide Order

A Detroit ordinance regulating the sale and use of insecticidal or pest control powders containing sodium fluoride, sodium fluorsilicate, arsenic or any other poisonous compound, is now in effect in that city. The National Association of Insecticide and Disinfectant Manufacturers have a copy of the ordinance, a copy of which has been sent to its members and to which two minor changes have been added.

Orbis Names Mexican Rep.

Orbis Products Corp., New York essential oil and aromatic chemical firm, has just announced the appointment of Agencia Continental de Commercia A. en P. as their exclusive Mexican representative. Their address is Jose Maria Iglesias 35, Apartado Postal 8919, Mexico, D.F.

Lieutenant Commander Robert L. Cahill, U.S.N.R., has resumed his post as vice-president of Orbis Products, after a tour of active duty since 1942 with the Navy.

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Two New Dreyer Officers

Henry A. Wiedman was elected vice-president of P. R. Dreyer Inc., essential oil and aromatic chemical firm, New York, at a recent stockholders' meeting. He became secretary of the organization in July, 1938, and, previous to joining the firm as sales manager in 1936, he had been associated with the McKesson & Robbins purchasing department, E. Fougera & Co., as purchasing agent, manager of chemical sales for Schering Corp., and with Magnus, Mabee & Reynard, essential oil house. James V. Demarest, who has been connected with the company since January, 1934, as chief chemist, was elected secretary of the Dreyer organization. Mr. Demarest, who received his B.S. and M.S. degrees in chemistry from Rutgers University, was employed in the organic chemical and essential oil industries before coming to Dreyer.

Western P.C.O. Meeting Feb. 18-21

The West Coast P.C.O. Conference and Convention will be held Feb. 18-21 at the Palace Hotel, San Francisco. Stennett Heaton is conference chairman.

Uncle Sam in Larger Quarters

Uncle Sam Chemical Co., manufacturers for jobbers of insecticides, disinfectants, deodorants, and other sanitary products, New York, moved last month to new and larger quarters in their own building, at 573-577 W. 131st St., New York 27. The firm was formerly located at 329 E. 29th St. The new location consists of a four-story building, that comprises 30,000 square feet of floor space.

Hysan Resumes Shipment

Hysan Products Co., Chicago, whose 4-story factory at 58 E. Cullerton St. was attacked by fire on December 2nd has partially resumed its operations. New processing equipment is being received daily to further augment production on disinfectants, soaps, deodorants, waxes, insecticides and other sanitary chemicals, according to Henry J. Brownstein, manager.

Anderson Prichard Oil Folders

Anderson-Prichard Oil Corp., petroleum producers and refiners, Oklahoma City, recently brought out five folders giving detailed specifications and other information on their base oils for insecticides. PS48, "Deodorized Apco Naphthas and Tests," explains special tests and controls of base oil production; PS54, "Deodorized Apco 467," deals with a standard base for insecticides which has, it is claimed, neutral odor, high flash, freedom from residue and freedom from residual odor; PS50, "Deodorized Apco 125," covers information on this base oil for bed bug liquids; and PS32, "Apco 467," and PS28, "Apco 125," are two booklets which tell of other petroleum products used in the insecticide industry for a number of years.

Seckler Opens Own Office

J. B. Seckler, formerly associated with National Kill Dust Co., New York, has opened his own offices and sales rooms at 11 W. 42nd St., New York.

MILITARY CAMPS PROVIDE PROPER SANITATION *with*

ADAM A. BREUER'S

ELECTRIC INSECTICIDE SPRAYERS

Portable — Fast — Efficient

PROTECTING the health of the armed forces thru proper sanitation in War Camps is an essential step. Consequently, such camps are adopting the rapid, efficient, portable method of spraying insecticides, namely, the Adam A. Breuer's ELECTRIC INSECTICIDE SPRAYER. It sprays insecticides for killing insects, vermin, etc. It shoots liquid a distance of twenty feet, thus proving its powerful, effective action. *Write for complete details, specifying your problems and how many Sprayers you will require.*

We do not sell insecticides. Our business is the manufacture of Sprayers. (Patented in U. S. A. and foreign countries.)

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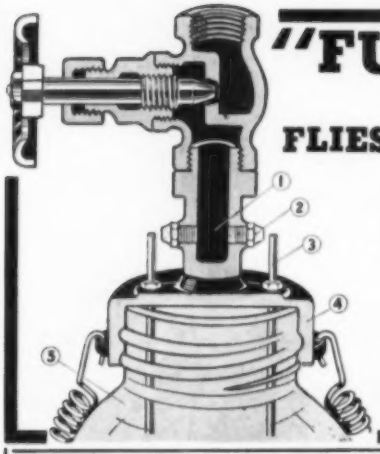

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Pat. Sept., 1934—Aug., 1938

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Eastern PCO Meeting Feb. 5-7

The fifth annual Eastern PCO Conference will be held at Massachusetts State College, Amherst, Mass., in cooperation with the National Pest Control Association, Monday, Tuesday and Wednesday, Feb. 5-7. In addition to lecture sessions, there will be laboratory sessions in the morning and afternoon of the second day of the meeting. One of the highlights of the program will be the Wednesday afternoon, Feb. 7, "Symposium on DDT." At this session, the "Pest Control Operators' Research Project" will be discussed, as will "The Effects of Physical Environment on DDT," "Toxicity and Postwar Outlook" and "Some Phases of Use of DDT of Especial Importance to the Pest Control Operator." Wm. O. Buettner, secretary of the National Pest Control Association, will preside.

Prentiss Issues Price List

The 1944 price list of R. J. Prentiss & Co., New York, dealers and importers of drugs, chemical and insecticides was recently issued. This 64-page booklet, measuring 5½" x 8½", contains price listings for domestic botanicals, crude drugs, pyrethrum, essential oils, rotenone, red squill, and chemicals. In addition, the booklet contains a glossary of botanical drugs with their generic and alternate names and also an indication of their common useage.

Advertisers Elect Connolly

William R. Connolly, advertising manager of S. C. Johnson & Son, Inc., Racine, Wis., was elected a director of the Association of National Advertisers at the group's recent annual meeting in New York.

Hy-Glo Employee Xmas Party

A Christmas dinner party for employees was given by Hy-Glo Products Co., Owosso, Mich., sanitary products manufacturers, at noon, Dec. 23. Bonuses for the year were paid the employees following the festivities. Pvt. Robert Spencer at home on leave from the Army was the special guest of honor.

Professional Exterminators Elect

The officers of the Professional Exterminators Assn. were re-elected unanimously for the coming year at the group's regular business meeting, Dec. 11, at the Hotel Commodore, New York. The only change in the official make-up of the Association was the addition of Raymond Davenport, of Davenport's Sanitary Service, who was named to the board of directors. The officers of the organization are: Joseph Finneman, president; Milford H. Oachs, vice-president; Jack Shaff, secretary and William Farrell, treasurer.

Canada Testing DDT

The Canadian National Research Council, according to recent reports from Ottawa, has been making extensive tests of DDT, for control of agricultural pests. Using a helicopter in one experiment, a DDT insecticide was spread over a one-mile strip of spruce trees which had been infested with budworm insects. Results were said to have been satisfactory. The project was conducted in cooperation with the U. S. Dept. of Agriculture.

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The HUBER ELECTRO PERFECTION CRUTCHER offers a choice of four forward and reverse speeds. The flexibility in operating technique afforded by this wide choice of crutcher speeds should be decidedly interesting to many soap makers. Available in three sizes,—1,500, 2,400 and 3,200 pounds.

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136 Liberty Street New York 6, N. Y.

N.A.I.D.M. MEETING

(*From Page 96*)

to outline the following requirements of a good household sprayer: must throw a spray of 20 ccs; should not come in size smaller than one pint; leakage must be eliminated and, as far as a cheaper sprayer is concerned, manufacturers must build more sprayer, not a wetter sprayer. As for electric sprayers, Mr. Nelson said there ought to be three types: one to retail between $8 and $10 that will last and be effective against flying insects and throw one ounce a minute; a second that will cost between $18 and $5 and throw two ounces of spray a minute and a third large type for factory or dairy use to be distributed by spray manufacturers, and whose specifications should be up to the manufacturer.

A. W. Morrison, of Socony-Vacuum Oil Co., New York, chairman of the Exhibit Committee reported that the Association's exhibit is to be shipped and shown at meetings of three other associations: the American Public Health Assn., the National Safety Council and the National Educational Assn. A model of the exhibit will be shown at the June N.A.I.D.M. meeting.

Hooker Advances Coey

John S. Coey has just been appointed manager of the sales development department of Hooker Electrochemical Co., at Niagara Falls, N. Y. A graduate of Amherst College, Mr. Coey joined the company in 1927, and up until recently was an assistant in the sales development department.

ENTOMOLOGISTS MEET

(*From Page 121D*)

results obtained with DDT in spraying the homes of Southern share-croppers against malaria-carrying mosquitoes. With the return from overseas of service men who have contracted malaria, many medical authorities fear that the disease may be passed along to others by mosquitoes. Malaria control methods have not up to this point solved the problem in the Southern states, but according to Dr. Knowles the unique residual toxicity of DDT should make control through spray application less expensive and thus more practical. In a test application in Arkansas inspection of houses during a two-month period after spraying with a DDT insecticide showed a 94 per cent average reduction in the number of mosquitoes found on the walls. The job used an average of 0.82 gallon per house of a 5 per cent DDT solution, and cost 74c per house for materials and labor.

Another report on malaria control—on the Persian Corridor supply route to Russia—was presented by Lt. Col. L. A. Stearns, who before the war was head of the Entomology Department of the University of Delaware. During 11 months as staff malariologist in the Persian Corridor district, exceptional success was obtained in malaria control. Paris green was used, mixed at 3 per cent strength with desert dust for some areas, while diesel oil, sometimes mixed with insecticides, was used in other mosquito breeding spots.

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METASIL (sodium metasilicate) for Laundries, metal cleaning and compounding.

METAPLUS — for metal and textile cleaning. Will replace T.S.P. to advantage in compounds.

DRIVEWAY CLEANER — for driveways, runways, garage and factory floors, grease pits, etc.

DISH WASHING COMPOUND — for dish washing machines and all spray washing machines.

CONCENTRATED SOAP POWDER — a concentrated soap powder for cold or hot water.

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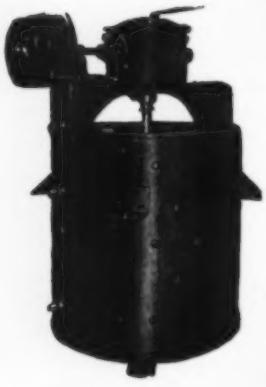

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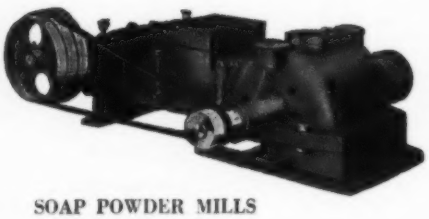

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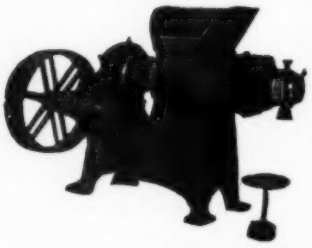
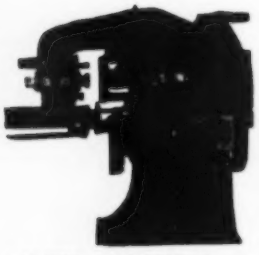


Single screw soap plodders with 6, 8, 10 or 12 inch screws. All completely rebuilt and unconditionally guaranteed.



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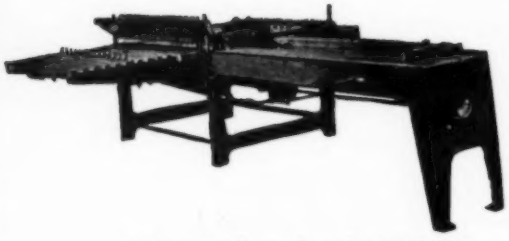

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- H-A Automatic and Hand-Power slabbers.
- Proctor & Schwartz Bar Soap Dryers.
- Blanchard No. 10-A and No. 14 Soap Powder Mills.
- J. H. Day Jaw Soap Crusher.
- H-A 6, 8 and 10 inch Single Screw Plodders.
- Allbright-Nell 10 inch Plodders.
- Filling and Weighing Machine for Flakes, Powders, etc.
- Steel Soap frames, all sizes.
- Steam Jacketed Soap Remelters.
- Automatic Soap Wrapping Machines.
- Glycerin Evaporators, Pumps.
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- Gardiner Sifter and Mixer.
- Proctor & Schwartz large roll Soap Chip Dryers complete.
- Doll Steam Jacketed Soap Crutchers, 1000, 1200 and 1350 lbs. capacity.
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- All types and sizes—Tanks and Kettles.
- Ralston and H-A Automatic Cutting Tables.
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- Broughton Soap Powder Mixers.
- Williams Crutcher and Pulverizer.
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Vegetable Oil Refiner: Located in New Jersey, requires a man experienced in refining or hardening. Permanent position with excellent opportunity for advancement. Address Box No. 104, 159 East 34th Street, New York 16.

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Experienced Salesman Wanted: To sell sanitary supplies local position, calling on institutions, schools, hospitals, theatres, office buildings, industrial and defense plants. Apply McCann Chemical Company, Louisville 2, Kentucky.

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Progressive Baltimore Janitor supply and sanitary chemicals firm, desire exclusive distribution on nationally advertised products. In business since 1930, doing half of a million business per year. Address Box No. 866, care of *Soap & Sanitary Chemicals.*

Sales Executive:—39 years, sixteen years sales promotion experience and following in institutional field, will buy established soap, disinfectant or allied distributor business, or will invest as partner. Address Box No. 868, care of *Soap & Sanitary Chemicals.*

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Floor Brushes — We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Co., Los Angeles, Calif.

Special: Dopp 1200 lb. Soap Crutcher; H. A. 6 Knife Soap Chipper; Filters; Pumps; Fillers; Labelers; Tanks; Dryers; Mixers, etc. Wanted, your surplus equipment. Brill Equipment Co., 225 W. 34th St., New York 1, N. Y.

Partnership or purchase outright chemical manufacturing business. (Drug, paint, or household chemicals, waxes, polishes, disinfectants.) Investment up to $25,000 offered by experienced chemist. Strictly confidential. Address replies Box No. 870, care *Soap & Sanitary Chemicals.*

For Sale: Two Jones automatic Soap Presses; One Dopp No. 1500 Crutcher; Six soap Kettles, all sizes; Mixers, Fillers, Packaging Equipment. First Machinery Corp., 821 E. 9th Street, New York 9, N. Y.

Soap Plant Wanted: Medium size Soap Plant to lease or purchase. Address Box No. 860, care of *Soap & Sanitary Chemicals.*

For Sale: Palm Oil, one drum of 400 lbs. surplus. $40 delivered. A. C. Kralik Co., Venice, Florida.

Wanted: a supply of tin mouth-sprayers. Please state size and quantity you have for sale. Address replies Box No. 871, care *Soap & Sanitary Chemicals.*

Wanted Distributor: By manufacturer of floor waxes, soaps, and polishes; to cover West Coast, Middle West, New York State, and Southern States. Address Box No. 874, care of *Soap & Sanitary Chemicals.*

Official Test Insecticide . . .

SUPPLIES of the 1944 Official Test Insecticide for evaluating insect sprays by the Official Peet-Grady Method are available from the office of this Association. The 1944 O.T.I. is priced at $5.00 per dozen six-ounce bottles, plus shipping costs, to members of this Association. To others, there is an additional service charge of $1.00 per dozen. Single bottles are $1.00 each. Check with order is required.

The 1944 Official Test Insecticide is required for all official testing of insect sprays by the Peet-Grady Method for the period from June 1, 1944, through May 31, 1945.

National Association of Insecticide & Disinfectant Manufacturers, Inc.

110 East 42nd Street — New York

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"Yo is gonna hafta start sellin' soon agin, Cuthbert, so yo might as well git back to yo best sellin' weight!"

. . . in shape?

IS your sales department starting to get in shape for keener competition to come? Are you laying your plans now and getting ready? One of the best aids in preparing the way for your sales staff when the time comes again to go out hard after new business is regular advertising in advance, before the actual selling starts. Advance advertising helps to soften up tough selling jobs.

If you would get in shape to do a better sales job in the field of soap products, insecticides, and other chemical and household specialties in the post-war period, we suggest regular advertising *now* in

SOAP *and Sanitary Chemicals*
254 WEST 31st STREET NEW YORK 1

Member Audit Bureau of Circulations

Tale Ends

TIMES change, and how! R. H. Macy & Co., New York, through its Vendor Relations Committee, has issued a booklet in the form of a "Report to our Supplier"—to establish and maintain cordial relations with those from whom it buys its merchandise. And it invites suggestions from the suppliers. Coming from a firm with as smart a merchandising organization as Macy's, this is certainly an unmistakable sign of the times.

* * *

Quaint custom! For some years for the benefit of particularly popular personages among its membership, there has been the custom of booing such persons when they arose to speak at meetings of the National Association of Insecticide & Disinfectant Manufacturers. It started many years ago. If they boo you, you're O.K.!

* * *

About 699 persons, firms and others would like to buy some of the "surplus" pyrethrum extract held at Mare Island Navy Yard, and mentioned here a couple of months ago. Latest word continues to be that the Navy does not want to sell.

* * *

General Joe Battley of the Army Service Command who in the NRA days of yesteryear as Captain Battley was coordinator under NRA for the insecticide and disinfectant industry, addressed the recent NAIDM meeting in New York. He was introduced by W. J. Zick, sales manager for Stanco, Inc., who served under the then Lieut. Battley in the Chemical Warfare Service in France in 1917-18.

* * *

Soap rationing . . . its possibility was again discussed last month at a meeting of soapers in Chicago, but the idea of recommending rationing or the like to OPA was reported rejected. Some soapers apparently had the idea that rationing might be needed along about the middle of 1945.